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Prospects of Labour¹

By E. H. PHELPS BROWN

Just a hundred years have passed since John Stuart Mill, in the first edition of his *Principles*, gave to the world the thoughts which he and Mrs. Taylor had formed on "The Probable Futurity of the Labouring Classes". A quarter of a century later the young Alfred Marshall read to a Cambridge society his paper on "The Future of the Working Classes".² It may be interesting for us to turn over again these now yellowing leaves, to see how their anticipations have stood the test of time; and then to ask how we in our own day shall form our view of the prospects of labour.

Mill began with a glance at Carlyle's *Past and Present*, and the paternal view of society, in which an upper class bears the burden of governance, and a lower class renders service and respect in return for protection and tutelage. There is no need, said Mill, to ask whether such a society, were it possible, would be a good one, for it is in fact no longer possible: the spread of education, and the popular press, and the dissenting chapel, have brought it about that, as he says, "the working classes have taken their interests into their own hands, and are perpetually showing that they think the interests of their employers are not identical with their own, but opposite to them". Nor can it even be supposed, "that they will be permanently contented with labouring for wages as their ultimate state. To work at the bidding and for the profit of another, without any interest in the work . . . is not, even when wages are high, a satisfactory state to human beings of educated intelligence, who have ceased to think themselves actually inferior to those whom they serve." How, then, will the wages system be superseded? By partnerships, said Mill. The economies of scale can be retained, and "the civilising and improving influences of association" enjoyed, in partnerships, either, as a first approach, of the labourers with the capitalist, or, better still, of labourers among themselves. He then went into much detail of experiments in Paris, set out the accounts of the pianomakers' co-operative, and the like; and concluded that "the form of association . . . which if mankind continue to improve, must be expected in the end to predominate, is . . . the association of the labourers themselves on terms of equality, collectively owning the capital with which they carry on their operations, and working under managers elected and removable by themselves".

¹ The substance of this paper was given as an Inaugural Lecture in the Chair of the Economics of Labour, at the London School of Economics, on 29th November, 1948, under the chairmanship of Professor Sir Arnold Plant.

² Reprinted in A. C. Pigou: *Memorials of Alfred Marshall*.

How does this look now? It has not stood the test of time very well. Some producers' co-operatives, it is true, do exist, but they account for so little output in the aggregate that they may be reckoned only a curiosity. The wage-earner is still the representative worker. Out of every 100 occupied persons in the United Kingdom in 1931, some 71 were wage-earners, another 19 were shop assistants and salaried employed, and only 10 out of the 100 were themselves employers or working independently. In a hundred years, during which the wage-earners certainly have not ceased to wish to take their interests into their own hands, why has Mill's expectation not been realised?

I think what strikes us most to-day is what we must call the sociological *naïveté* of his argument. We are increasingly aware of the variety of forms of human association, and the complexity and insistence of the human needs which any viable association must meet. But Mill, considering only one strand in the web, jumped straight from the existing form of association to just one other, and that, perhaps, of all forms the most difficult for more than two or three persons to maintain—the equal partnership. Literally, the equal partnership requires the satisfactory maintenance of good relations between each two people who enter into it. If there are seven partners, each will have a relation with each of the six others, and that makes forty-two attitudes in all, and twenty-one relations. The mathematically-minded will quickly arrive at the formula, which shows how very rapidly the number of such relations grows with each increase in the number of partners: and these relations all to be kept harmonious! But if we do not press the idea of partnership so hard, and suppose only that Mill meant that the wage-earners should elect the executives by whom they were to be directed, then indeed we enter on a more practicable form of association, but at the cost of restoring much of that distinction between those who take orders and those who give them, which Mill wanted to abolish. And even here, how are the different functions of any business team to be provided? How are the technicians, and the supervisory grades, to be hired and paid? How are the able and vigorous to work as equal partners with the weak and unenterprising? The direction of any but a routine business is an adventure, a campaign, that calls for exceptional gifts of mind and, above all, of character—the detachment and acumen to make the right decision, and then the confidence and the guts to maintain it through the flux of fortune. Can the few who have these gifts be made subject to dismissal by the many who have not? Can an elected manager exercise the authority which, in any form of firm, management must have? I do not ask these questions with a rhetorical flourish: we have so much still to learn about the different possibilities of teamwork, that answers to them may well be found. But I do not think they have been found yet; and therein lies the reason for the disappointment of Mill's hopes.

There is one way, however, in which the relation of employer and employed as Mill knew it has been very much changed. His language suggests that he was thinking of a personal dependence, a relation between a boss and a hand. To-day most industrial wage-earners are working in firms where the personal boss has gone and his place is taken by a salaried management. Legally, the employer is a *persona*, the company; in practice, the daily functions of the employer are discharged by those who are themselves employees. To this extent, management has shifted from the proprietor to the executive: it has become a function; and those who give orders and those who take them are now related, not as master and servant, but as two servants of the same concern. Herein lie fruitful possibilities of the development of teamwork.

There is one other aspect of Mill's thought, to which we must recur. But first let us glance at Marshall's.

Marshall began with a tribute to Mrs. Taylor, which deserves notice, be it only because it contains what surely is the least split, and most Marshallian, infinitive ever penned: when he urged his hearers to consider what energies would be liberated, "if we would unwrap the swaddling clothes in which artificial customs have enfolded woman's mind and would give her free scope womanfully to discharge her duties to the world". He went on then to pose his question: "whether the amelioration of the working classes had limits beyond which it cannot pass; whether it be true that the resources of the world will not suffice for giving to more than a small portion of its inhabitants an education in youth and an occupation in after-life, similar to those which we are now wont to consider proper to a gentleman?" The word 'gentleman' has overtones which are unwanted here, and I think we can fairly re-word Marshall's questions as: "whether every occupation can become a profession, and every working man be a professional man?" Marshall had in mind a contrast between two kinds of occupation. On the one hand is the work which does not develop a man's faculties while he is engaged upon it, or leave him with energy and appetite for any but the coarsest pleasures afterwards. On the other are those occupations which exercise the mind, enlarge the sympathies, and deepen the capacity for refined enjoyment. The young author of this paper was already too good a Marshallian not to point out that there is no sharp division, and he instanced the spectrum from the sculptor through the mason to the navvy, in the building trade. But the practical question is, can the occupations at the brutalising end of the scale be progressively eliminated, till "no one . . . should have any occupation which tends to make him anything else than a gentleman?"

He was sure that the answer was Yes; and the way in which it would be brought about was simply—through education. Though the advance of mechanisation will do away with much toil, some dull and heavy work is bound to remain. Yet give everyone a good education:

then no one will do such work unless he is highly paid for it, and works such short hours that he is left with the energy to make good use of his leisure. The slogging, unprofessional tasks, then, will either be discharged by those who find in them the means of earning in short hours the wherewithal to make good use of their extensive leisure; or will be shared among those whose main activities are intellectual, and who will gain rather than lose by a daily spell of exercise. Give everyone an education; forbid anyone to work long hours of manual labour: and it will follow that "everyone who is not a gentleman will have himself alone to blame for it".

Such was Marshall's faith, in 1873. Was it only a vision of Utopia? I do not think so. I believe that the process on which he relied has already brought about great changes in society; and that, though it cannot go as far as he hoped, we shall still see it push those changes somewhat further. Marshall wrote in the decade that saw the coming of general compulsory elementary education in this country. Since that time one social gulf has been bridged—that between the unskilled wage-earners and the skilled. A glance at a street scene of seventy years ago, in the pages, say, of *Punch*, will point the contrast: the respectable tradesman, heir to "the gentleman millwright in his top hat"; and the unskilled labourer, a Caliban, ragged, misshapen, illiterate, drunken. To-day the difference between skilled and unskilled is not visible, out of working hours, in dress, and is not conspicuous, at any time, in speech and bearing. This change has not been much remarked, perhaps because we have had so little statistical evidence for the frequency distribution of incomes around and below the old income-tax exemption level; but there is statistical evidence to support the impression which has here been suggested graphically. One of the ways in which this rise in the relative wages of the less skilled has come about, has been the granting of the same absolute bonus to all grades to meet the rising cost of living, during both Great Wars. But the changed ratio introduced in this way would not have persisted had it not been in agreement with the tides of supply and demand. International comparisons suggest where the tidal movement is to be found: it seems that, save where there is immigrant peasant labour, the extension of education goes with a higher ratio of unskilled earnings to skilled.¹

And as to how this process may go on: let me indicate its possibilities by one calculation. Before the war, Professor Burt and Mrs. Raphael² made a comparison between the relative numbers in the different grades of intelligence, and those in different groups of occupations graded according to the intelligence they demand. The scale of intelligence was divided into eight grades. Corresponding to the

¹ Cf. A. G. B. Fisher: "Education and Relative Wages", in *International Labour Review*, June 1932. I am indebted to Mr. J. E. Isaac of Melbourne University for a helpful discussion of this point.

² Industrial Fatigue Research Board. *Report No. 33*.

highest grade—mental ratio over 150—was the group of the highest professional and administrative occupations; to the next grade of intelligence corresponded the group of the remaining professional occupations; and so on down the scale. Now the four highest grades of intelligence contain half the population; but (on the sample taken) the corresponding occupations contained only 41 per cent. of all occupied persons. In other words, if the educational ladder is made so broad and long that everyone gets the chance to have a go at the kind of job which his intelligence is up to, in the better-paid occupations there would be five people available where hitherto there had been only four jobs, and in the worse-paid ones there would be six jobs for only five applicants. It seems that the Marshallian process, of greater equality of earnings through more education, has some way yet to go, but will not continue without assignable limit.

We have considered what was most specific in the thought of Mill and Marshall. Now it is high time to note what they had in common, for that is very striking. Notice, first, what they agreed in *not* seeking after. Neither laid stress on a rise in the material standard of living: on the increase in the economic welfare of the workers, as we should commonly conceive that to-day. Nor did either advocate, nor seem even to feel the need for, any changes in economic organisation, or the administration of economic policy, on the large or national scale. But what both did stress was the quality of a man's working life, his relations with other men in it, and the influence of his work on his character. Some of Mill's words express Marshall's aim no less than his: "the conversion of each human being's daily occupation into a school of the social sympathies and the practical intelligence". Does this only have a musty smell of pietism about it, or does it contain a truth which we have more than half forgotten and need to recapture? In turning now to ask what view we in our own day can form of the prospects of labour, I shall urge that Mill and Marshall were right in this, and that what is most relevant in our modern studies is bringing us back to their stress and aim.

Marshall believed that his view of society differed from that of the earlier economists because of the rise of biology. Has there been any development since his day by which our view of society has been modified in its turn? I believe that there has been, and that our view of all social questions must be affected by the growing application of scientific method to the study of human nature, in anthropology and sociology, and by the development of the psychology of personality, more especially the study of the subconscious. I speak as a layman; but just as biology influenced the thought of the many who were not themselves biologists, so this growing knowledge of human nature is influencing the thought of those who work in neighbouring fields.

I believe that no one who has felt this influence will approach social problems to-day as it was usual to approach them forty years ago. We

have gained more appreciation of the complexity of human needs, the variety of forms of human associations, and the importance of human relations to our well-being. We have gained also an appreciation of the role of the irrational and subconscious in human conduct. These subconscious workings are seen to be present, not only in the evidently disordered, but in every one of us; they suggest the origin of moods and worries, of irrational anxieties and antagonisms, and of some bodily ailments, which clear up when the inner conflicts from which they stem are resolved. This new understanding, imperfect as it is, already offers new powers of self-control. The history of religion, as marred by cruelty and oppression as other tracts of human history, reminds us that devout aspiration is not enough. Self-control depends on self-knowledge, and it is greater self-knowledge that we are offered here.

Let me now consider how this growing insight into human nature affects our view of the prospects of labour.

A point of great practical importance presents itself immediately. There is reason to believe that our national product can to-day be substantially increased, without installing any more equipment, if men who are now working only reluctantly and listlessly, who "couldn't care less", could come to work willingly and with interest. The possibility of such an increase is not a matter of conjecture, but is established by known differences between the results obtained by different firms in the same trade, or by the same group of workers at different times. The increase does not come from speeding up, nor even from the worker being willing to put more effort into the job. It comes about without increased exertion, through the liberation of human energies that occurs when inner conflicts are resolved and social frustrations are removed. When interest succeeds boredom, and pride in achievement takes the place of indifference, when we work with a common purpose instead of at cross purposes, then we can get more done in a day without being any more tired at the end of it.

A second practical application appears when we are thinking of a possible world of full employment and social security, and ask whether men will be willing to bear much of the heat and burden of the day in such a world. If we think of men just as incurring the disutility of effort for the utility of pay, then certainly a world of full employment seems likely to lack stern but necessary sanctions. But it is safe to treat pay as the main inducement to work, only if other satisfactions are relatively unimportant, or if differences in them, though important, are of a kind that can be offset by differences in pay. Neither of these conditions holds. These other satisfactions are such as these: the interest a man takes in his job, and his pride in his product; how he gets on with his mates, and with the gaffer; what reputation his group has in the world, and the status he enjoys within it; and what prestige his job carries in the community. The satisfactions gained

in this way are not unimportant, relatively to pay ; nor are they all of a kind that can be weighed in the same balance as money, for a man's self-respect may depend on them. To the question, What makes men work ? as to the other question, What makes men strike ? pay provides only part of the answer. There seems no reason to think that, where men are rightly led, removing the threat of unemployment will reduce their willingness to work ; on the contrary, by taking away a major cause of defensive group resistances, it may, as time goes on, set men free to work more willingly than before.

So far on what human nature in industry can mean for productivity ; now to draw an inference for our conception of economic welfare. We economists have given most attention to the satisfaction which is gained through consumption. Formally, it is true, all our analysis of the consumer's satisfactions can be applied to those of the worker : who can be thought of as dividing his time between work and leisure, and of balancing the pecuniary and the non-pecuniary benefits of different kinds of work, in much the same way as the consumer divides his outlay between different commodities. It can be shown, too, that there can be an optimum allocation of resources, which is an optimum not only for consumers but for workers, in the sense that no worker by changing his employment could increase the net advantages he derives from his working life. But I do not think the analysis of workers' benefits has been elaborated so much as that of consumers' ; and in any case, how artificial it would be ! For the optimum is attained only if consumers who wish to have workers engage in a new employment are required to pay at least so much to them there as will offset the cost of their move. In practice, the consumers do not have to do this, for two reasons. First, the worker may have no option. How many of the countryfolk who filled up our industrial valleys a hundred years ago moved because they reckoned the net advantages of their new employment would exceed that of their old, and how many because in the village there was no employment for them at all ? Or, in a more general statement : a switch in demand which calls for more workers in one place has already thrown workers out of their jobs in another ; so what has to be bid to draw workers into the new employment may be only the reserve price of the unemployed. And, secondly, even where a full transfer price is paid to the worker himself, does this take account of the new way of life that is being made, the cost perhaps to the children that will come there of running among the slag heaps instead of under the elms ? In fact, a switch of demand can break up men's homes, and impoverish their children's lives ; but the consumer does not have to pay for the devastation he causes. I think we have taken too little account of that. In our studies of welfare, for the most part we have assumed—even most of those who have been devising the framework of a collectivist society—that to get the greatest welfare we must leave men as consumers free to spend their money on what they like, and the same men as workers must adapt

themselves to that. There is evident force in this, but by itself it is one-sided. I would like us also to explore the opposite principle, also one-sided but also forcible: that men as workers should have the jobs that will yield them and their families the most well-being in their working lives; and that their consumption must adjust itself to that.

I have given some grounds for believing that our growing insight into human nature must widen our view both of motives and of welfare in daily work. But with this will also go some changes in our view of social policy, of the organisation of "the annual labour of every nation".

The view of social policy which predominates to-day is common to most schools of practical politics, which differ by more and less rather than by yea and nay. I take it to have been moulded not by the study of society but by the insistent pressure of the great overriding necessity of the last century—the necessity of coping with the unprecedented, rapid, and persistent growth of population. The biological revolution which struck these islands about two hundred years ago raised first and foremost the problem of food. By the industrial revolution and our coal and iron, we in Great Britain escaped the Irish famine, and, as our commerce extended, the race between productivity and population, which in the Hungry Forties had been desperate, was won handsomely by productivity. Yet when the problem of subsistence was—at least for the time being—so well solved, there remained a problem of deracination. Though most of the growth of population came not from immigration but from natural increase, in one sense almost all of it raised the problem of absorbing a great migration. For the added numbers of each succeeding year overflowed the old vessels of town and country: most of the children could not grow up to take places which others left for them, but had to migrate—albeit most of them only for short distances—to find new jobs, new houses, and a new way of life. By 1900 we had become in type a nation of the uprooted, of 'displaced persons'. How could a seemly and healthy way of life be provided for this host which could not follow the customary paths, as heirs of the traditions and neighbourly relations of a settled community? The means of re-organisation and re-settlement were found in a social invention, an invention as characteristic of the nineteenth century as the railway engine: this was, Administration. The reform and new growth of local government; the new poor law; the beginnings of general schooling; the development of the civil service; the appearance of a new sort of man, the social expert—social scientist, public servant, or reformer, or something of all three, a great line from Chadwick to Beveridge—these made up a system and skill of administration such as had not been known before. This system had four main points: (1) The executive advantages, real or apparent, of unification, and the large unit of control. (2) The use of the expert. (3) The use of powers of compulsion against unwilling minorities who otherwise could hamstring the whole scheme. (4) The

expert being ultimately responsible to a democratically-elected body.¹ Administration worked; it did much good; it got the D.P. camp straight; and even sufferings which used to seem the immutable dispensations of providence now yielded to it. Adventitiously, its prestige was enhanced by two great wars, in which administration of wider extent than ever before was essential, and at least one plan on the colossal scale was conspicuously successful. It was natural, then, that Administration should be looked to as the universal remedy and the sealed pattern of progressive social policy: so that when the essentials of decently-ordered living had been secured, and men took breath and turned to the more complex problems of industry, they found the way to deal with them in the same system.

If our thoughts now begin to turn in new directions, they will do so only from the starting point of the great social benefits which Administration has brought, many of them only recently. But I will instance two points in which our growing insight into human nature may affect our view of social policy.

First, as to what is the great enemy. Our thoughts have been formed in a world where the great evil was poverty. "The crying need of the nation," wrote Shaw in his preface to *Major Barbara*, "is not for better morals, cheaper bread, temperance, liberty, culture, redemption of fallen sisters and erring brothers, nor the grace, love, and fellowship of the Trinity, but simply for enough money. And the evil to be attacked is not sin, suffering, greed, priestcraft, kingcraft, demagoguery, monopoly, ignorance, drink, war, pestilence, nor any other of the scapegoats which reformers sacrifice, but simply poverty." That was written in 1906. To-day the scene has changed. With all our present problems, there is little left of the poverty which was systematic and endemic forty years ago. What then is the way forward now? To yet higher levels of real income, from the European to the American factory-worker's standard of consumption, and on again beyond that? Perhaps so; yet what are refrigerators and radios and cars, if they come with more personal instability, more broken homes, more insecure and inwardly-tormented children? Even to-day, which causes more suffering among wage-earners, lack of the things which can be bought, or the anxieties, frustrations, and conflicts of neurosis? A recent inquiry by the Industrial Health Research Board² into the incidence of neurosis among some 3,000 workers in engineering factories found that in the course of six months 10 per cent. "had suffered from definite and disabling neurotic illness" and a further 20 per cent. "from

¹ The first three of these points are expressed by Beatrice Webb in her diary for December 29, 1894: "We wish to introduce into politics the professional expert—to extend the sphere of government by adding to its enormous advantages of wholesale and compulsory management, the advantage of the most skilled entrepreneur". But not so much the last point: "Possibly he (Leonard Courtenay) is more of a democrat than we are ourselves; for we have little faith in the 'average sensual man', we do not believe that he can do much more than describe his grievances, we do not think that he can prescribe the remedies". (*Our Partnership*, p. 120.)

² Medical Research Council: *Industrial Health Research Board Report No. 90*: "The Incidence of Neurosis among Factory Workers," by Russell Fraser. (H.M.S.O. 1947.)

minor forms of neurosis"; "neurotic illness caused between a quarter and a third of all absence from work due to illness". Without building too much on one sample, we can recognise the presence of a major problem in human well-being. It is a problem likely to bulk larger in our thought and action henceforward. We are bound to be relatively more concerned with the mental than the material causes of the impoverishment of men's lives.

A second point at which our interest in human nature must affect our view of social policy, lies in industrial organisation. Nationalisation is the application to industry of the system of Administration. It may prove eventually to be a means of making his working life more worth while to the worker: but the main changes which it makes are in the size of the unit of administration, and the mode of appointment of the top executives, and I doubt if these are the changes we should most want to make, if we began with a clear picture of what men and women ask of their working life, and set out to make that life more interesting and satisfying for them. If we did this, the changes we should want to begin with would be in the things that most concern the worker on the job, his relations with his immediate supervisors, for instance, or his chance to do the kind of work in which he feels at his best because he can give of his best. A worker who has an interesting job, gets on well with his mates, and takes a pride in the firm, has a better life than one without these things; but, so far at least, the difference between private and public ownership has not carried with it any systematic difference in these respects. This is a simple observation, but one on which something may turn in the future.

I have tried to suggest some ways in which a growing understanding of human nature may shape our view of the way forward. We look for a world in which the worker shall be proud of his work, and the team of workers shall be a vital society. Such a world cannot be constructed from blue prints of organisation. Little can be done to bring it nearer through such changes as can be made, quickly and generally, by legislation. For each approach to it depends on the *quality* of men, on their self-knowledge and self-control, on the understanding and skill they have in their dealings with one another; and these things cannot be enacted. But where a training scheme gives a lad the chance to do the work his brains fit him for; where a manager takes over a staff that is sullen and indifferent, and by his leadership slowly brings it round to keenness and vigour; where parents, through greater understanding of the nursery years, are able to send their children out into life with less handicap of inner conflict—there an approach is being made. That approach is still to the goal of Mill and Marshall, "the conversion of each human being's daily occupation into a school of the social sympathies and the practical intelligence".

The Valuation of the Social Income

By I. M. D. LITTLE

PART I. AT MARKET PRICES

THIS article is a discussion of the meaning of comparisons of measures of national income at different times, with special reference to the earlier articles in *Economica* by Mr. Hicks and Professor Kuznets.

If $\Sigma p_2 q_2 > \Sigma p_2 q_1$, and if $\Sigma p_1 q_1 < \Sigma p_1 q_2$, where the p 's signify market prices, and the q 's the quantities of goods bought by an individual, then this individual could in situation II have bought the goods of situation I, and in situation I he could not have bought the goods of situation II. It will be assumed throughout this article that these facts suffice for us to say that his economic welfare is greater in situation II. If however the q 's refer not to the goods bought by an individual but those bought by a group or society, then there is no obvious meaning which we can attach to this index number criterion.

In his article, "The Valuation of the Social Income,"¹ Mr. Hicks has however suggested a meaning. He maintains that it implies that in situation I there could have been no redistribution of goods which would have made everyone better off, or even as well off, as in situation II. The passage, in which this is demonstrated, is quoted below. Mr. Hicks wrote :—

" Since this condition refers only to the total quantities acquired, it can tell us nothing about the distribution of wealth among the members of the group. There may be a drastic redistribution of wealth among the members and the aggregates will remain exactly the same. Thus, what the condition $\Sigma p_2 q_2 > \Sigma p_2 q_1$ tells us is that there is some redistribution of the q 's which would make every member of the group less well off than he actually is in the II situation. For, if the corresponding inequality were to hold for every individual separately, it would hold for the group as a whole.

" As compared with this particular distribution, every other distribution of the q_1 's would make some people better off and some worse off. Consequently, if there is one distribution of the q_1 's in which every member of the group is worse off than he actually is in the II situation, there can be no distribution in which everyone is better off, or even as well off. Thus, if we start from any actual distribution of wealth in the I situation, what the condition $\Sigma p_2 q_2 > \Sigma p_2 q_1$ tells us is that it is impossible to reach, by

¹ J. Hicks : "The Valuation of the Social Income," *Economica*, May, 1940. S. Kuznets : "On the Valuation of Social Income—Reflections on Professor Hicks's article," *Economica*, February 1948, and May, 1948.

redistribution, a position in which everyone is as well off as he is in the II situation.

"This would seem to be quite acceptable as a definition of increase in real social income."

Since only the distribution of the q_1 's is imagined to be altered, the total quantity of each good remaining unchanged, it is evident that no change in the formula $\Sigma p_2 q_2 > \Sigma p_2 q_1$ is involved. Professor Kuznets has criticised this definition. He states that it must pass the base reversal test. Thus, Professor Kuznets writes:¹

"But suppose we reverse the requirement, and ask whether it is impossible to make *everyone* as well off as in situation I by any redistribution of the actual quantities acquired in situation II. If it is impossible, then real income in I is greater than in II."

Clearly it is true that, if there is to be no contradiction, we must show that it is not impossible to redistribute the q_2 's so that $\Sigma p_1 q_1$ becomes smaller than $\Sigma p_1 q_2$ for every individual. For if this were impossible, then on Mr. Hicks's definition real social income would be greater in I. This is the correct reversal of Mr. Hicks's definition. But altering the distribution of q_2 's will not affect the magnitudes $\Sigma p_1 q_1$ and $\Sigma p_1 q_2$, because the p_2 's do not occur in either. Therefore, if $\Sigma p_1 q_1 < \Sigma p_1 q_2$ for the group, it can be made to hold for every individual. Consequently by the same argument as that of Mr. Hicks it would follow that real income is lower in situation I, and there would be no contradiction. Professor Kuznets, however, argues differently by means of the following numerical example in which the q 's refer to 'necessaries' and the Q 's to 'luxuries'.

SITUATION I

| Purchases by | Quantities | | Prices | | Money Aggregates | |
|--------------|------------|-----|--------|-----|------------------|------|
| | q | Q | p | P | pq | PQ |
| Poor | 8 | 0 | 1 | 1 | 8 | 0 |
| Rich | 1 | 3 | 1 | 1 | 1 | 3 |
| Total | 9 | 3 | | | 9 | 3 |

SITUATION II

| Purchases by | Quantities | | Prices | | Money Aggregates | |
|--------------|------------|-----|--------|-----|------------------|------|
| | q | Q | p | P | pq | PQ |
| Poor | 6 | 0 | 1 | 1 | 6 | 0 |
| Rich | 1 | 7 | 1 | 1 | 1 | 7 |
| Total | 7 | 7 | | | 7 | 7 |

This satisfies Mr. Hicks's requirements as quoted above. Does it satisfy the base reversal test? As I have indicated above, this question

¹ Op. cit. p. 4.

should mean, "Can we redistribute the q_2 's so that the formula $\Sigma p_1 q_1 < \Sigma p_1 q_2$ holds for every individual (or class in Professor Kuznets's example)?" Now for the poor $\Sigma p_1 q_1 = 8$, and for the rich 4. While $\Sigma p_1 q_2$ for the poor equals 6, and for the rich 8. Clearly if 3 units of q or Q are given by the rich to the poor, then we have $\Sigma p_1 q_2$ equals 9 for the poor and 5 for the rich, and the base reversal test is satisfied. An alteration of prices makes no difference because the p_2 's do not appear in the formula. Professor Kuznets, however, argues that "We can distribute the bundle of goods in situation II so as to make everyone at least as well off as in situation I *only* if Q 's can be substituted for q 's (luxuries for necessities)". This is true, but it is only relevant to a different criterion for an increase in real social income. Professor Kuznets is using the criterion that it must be possible to redistribute the q_2 's in the formula $\Sigma p_2 q_2 > \Sigma p_2 q_1$. Now in this formula a redistribution of q_2 's will affect the p_2 's¹ and may therefore affect the aggregates in such a way as to make $\Sigma p_2 q_2 < \Sigma p_2 q_1$. Therefore, Professor Kuznets is not suggesting a limitation to the validity of Mr. Hicks's definition of an increase in real income; he is proposing the entirely different criterion to the effect that it must be possible to redistribute *the goods of situation II* in such a way as to make $\Sigma p_2 q_2 > \Sigma p_2 q_1$ for each class, rich and poor.

Before examining Mr. Hicks's definition, which is thus immune from Professor Kuznets's conditions, let us see whether the latter has in fact proposed conditions which will ensure that the q_2 's can be redistributed so that $\Sigma p_2 q_2 > \Sigma p_2 q_1$ holds for each class, rich and poor. Professor Kuznets's conditions are as follows²:—

"If we are to determine unequivocally an increase in welfare in situation II over situation I, we must assume not only a constancy of wants in the sense of a constancy of each individual's appraisal of different goods but also that either (a) all goods can be substituted for one another in the full range, or (b) the structure of the goods aggregate in the two situations is such that no specific good, to the extent that it cannot be replaced by another, is reduced in output."

Now clearly the fulfilment of either (a) or (b) will only ensure that it cannot be proved, in the absence of any further knowledge about particular preferences, that a redistribution of the q_2 's, so as to make $\Sigma p_2 q_2 > \Sigma p_2 q_1$ for both classes, is impossible. This can most easily be seen with the aid of an example. Let us take Professor Kuznets's example, and suppose that q 's and Q 's are substitutes to some degree, and let us set about redistributing the q 's and Q 's of the second set, with the object of making both groups better off. If we shift purchasing power from rich to poor, we may suppose that the p_2 's (the prices of semi-necessities)

¹ If the p_2 's are unaffected, because controlled, the welfare significance of the formula is lost.

² Op. cit. p. 4.

rise, and the P_2 's (the prices of semi-luxuries) fall. If they each rise, and fall by 25 per cent., we have the following solution :—

| | Quantities | Cost |
|------|--------------|---|
| Poor | .. $6q + 4Q$ | $7\frac{1}{2} + 3 = 10\frac{1}{2} (\Sigma p_2 q_2)$ |
| Rich | .. $1q + 3Q$ | $1\frac{1}{4} + 2\frac{1}{4} = 3\frac{1}{2} (\Sigma p_2 q_2)$ |
| | | <hr/> |
| | | 14 |
| | | <hr/> |

For the poor $\Sigma p_2 q_2 = 10\frac{1}{2}$, and $\Sigma p_2 q_1 = 10$, since $q_1 = 8$, and $Q = 0$. For the rich $\Sigma p_2 q_2 = 3\frac{1}{2}$, and $\Sigma p_2 q_1 = 3\frac{1}{2}$, since $q_1 = 1$ and $Q = 3$. The poor are better off, and the rich no worse off. Thus it has proved possible to redistribute the q_2 's in the required manner.

But let us now suppose that the same quantity solution occurs but with a 50 per cent. change in prices. Thus we have :—

| | Quantities | Cost |
|------|--------------|-----------------------------------|
| Poor | .. $6q + 4Q$ | $9 + 2 = 11$ |
| Rich | .. $1q + 3Q$ | $1\frac{1}{2} + 1\frac{1}{2} = 3$ |
| | | <hr/> |
| | | 14 |
| | | <hr/> |

Now for the poor $\Sigma p_2 q_2 / \Sigma p_2 q_1 = 11/12$, and for the rich $\Sigma p_2 q_2 / \Sigma p_2 q_1 = 3/3$. Any further shift of purchasing power, which is still required to make the poor as well off, will make the rich worse off.

It is clear that this second solution might arise. We may conclude that we can never prove that the q_2 's could be redistributed so as to make some better off, and no one worse off, unless either (a) all goods are perfect substitutes or (b) the output of no good which does not have a perfect substitute declines. If no two goods are, by definition, perfect substitutes, we can conclude that it cannot be proved, if the output of any good declines, unless we have further knowledge of individual rates of substitution.

Therefore, these conditions are insufficient to be able to describe unequivocally an increase in welfare, if it is thought that one may not say welfare has increased unless it can be shown that it is possible to make some individual (or class) better off, and at the same time none worse off. The most that can be said is that welfare, in this sense, has probably increased.

We have seen, however, that Mr. Hicks's criterion¹ escapes these difficulties, and also that it stands up to the time reversal test. The question remains as to whether it is acceptable as a definition of an increase in real social income, or welfare (it is clear that these expressions are often regarded by economists as equivalent). This question cannot be

¹ Mr. Hicks in his reply to Professor Kuznets, which appeared after this was written, seems to abandon his former criterion, and adopt that of Professor Kuznets. See *Economica*, August, 1948.

adequately answered without a digression about the meaning of the word welfare and its equivalents.

At one time welfare was considered to be a state of mind; and economic welfare a part of that state of mind, the part caused by economic goods and services. These individual states of mind could be added up to form a sum total of satisfactions. It was then quite clear what an increase of community welfare was supposed to mean. It meant an increase in the sum total of those satisfactions which could be attributed to economic causes. This theory is now denied by the great majority. The following grounds of denial may be listed briefly. States of mind cannot be added up; states of different minds cannot be compared; there are not segregable parts of states of mind which can be attributed to economic causes. Of these grounds, I think the second is false, but one and three are fatal. This obviously merits further discussion in its own right, but I will not discuss it in view of the fact that, in rejecting the utilitarian doctrine, I believe I am siding with prevailing opinion.

When, therefore, we speak of the welfare of the community, we are not describing a great pool of satisfaction. We are not in fact describing (that is attributing any quantity or quality to) any thing, or any state of mind. The questions: "What is the economic welfare of the community like?", "How much is the welfare of the community?", do not make sense. Nor do such questions make sense when they are about individuals. Nevertheless, the question: "Has the economic welfare of this man increased?" does make sense. It means: "Have economic conditions changed in a manner favourable to this man's happiness?". Unfortunately, we cannot merely give the same translation of the question: "Has the economic welfare of the community increased?", because "the happiness of the community" is a phrase with no clear definite meaning. When therefore people speak of the "welfare of society" or "the happiness of the community", they do not mean anything definite. Nevertheless they usually use such phrases for a definite purpose. They say that some change would increase the welfare of society, because they want to recommend that change. No one would say such a thing of a change which he did not think ought to be carried out. In short, "the welfare of society" is a phrase which arouses people's emotions (or, to put the same thing in another way, people are intensely interested in the welfare of society), but it does not in ordinary language mean anything definite.

Now economists with a desire for 'objectivity' want to make the "welfare of society", or rather "an increase (or decrease) in the (economic) welfare of society", mean something definite. What must however be remembered is that the laying down of a definition, or of a sufficient criterion, for an increase in the welfare of society, will not rob the phrase of its emotive significance. People will be liable to object passionately to any such definition; so long as this fact is ignored,

so long will welfare economics have a dubious reputation. It is impossible to be merely scientific in terms of such strong ethical force. Nor would the substitution of colourless language be of any avail; either no one (including the 'Scientists') would be interested, or the new language would cease to be colourless. This must be so because the interest in the subject of welfare is essentially an ethical, and not a scientific, interest. Attempts to be purely scientific about welfare have continued to be made long after most people have ceased to believe in the possibility of a scientific ethics, because it has not been realised that such terms as "the welfare of society", "progress," "social benefit" and so on, *are* ethical terms.

Now it will clearly never be possible to give a criterion for an increase in welfare which everyone would accept. The best that could possibly be done would be to give a criterion which would be accepted by a large majority of people in the prevailing climate of ethical opinion. In the light of this digression let us consider Mr. Hicks's criterion.

Mr. Hicks proposes, in effect, that we can say welfare, or real social income, has increased over an earlier period if there could have been some distribution in that earlier period which would make every individual better off now as compared with then, in the sense of being now able to choose that earlier *pretended* position if he wanted. Thus, by this definition, we have to say the welfare of society has increased, when the poor are poorer, and even though it might be impossible to restore them to their former position without making the rich worse off in their turn. They have only the consolation that there might have been at the earlier period a distribution which would have made them, and everyone else, worse off than at present. I don't think many people would on this account want to say that welfare, or real social income, had increased.

This criterion can be contrasted with that which Professor Kuznets seems to use, which states that it must be possible to redistribute the goods of the second period so as to make everyone better off. This is far more acceptable. Nevertheless, we are still asked to say that welfare has actually increased if the poor are poorer and the rich richer, so long as the latter could compensate the former. It is more acceptable because the projected redistribution is not past, but present, and so is not in theory unrealisable. Probably most people would agree to say that there had been a potential increase in welfare, if such conditions were realised.¹

Unfortunately, we have seen that the condition $\Sigma p_2 q_2 > \Sigma p_2 q_1$ never tells us more than that there is some initial probability that there has been a potential increase in welfare in the above sense. For this reason, the size of the inequality is of great importance. The larger the excess

¹ But not everyone. For instance those who think that Veblenesque elements are important in the economy, that a person's happiness is too much bound up with the happiness and prosperity of others, would not perhaps allow that a situation which made the rich richer, and left the poor no worse off, could be said to be a position of greater welfare.

of $\Sigma p_2 q_2$ over $\Sigma p_2 q_1$ and the smaller the sacrifice of any one good, the more likely is it that it would be possible to make this condition hold for everyone. Moreover, the larger the inequality, and the more equalitarian any change in the distribution of money income, the greater the number of persons there are who are likely to have benefited. This is of great importance because most people would be prepared to say that the welfare of society had increased if a sufficiently large number of people were better off, even though some were worse off. This conclusion may clear up an apparent paradox in index number theory. When a cardinal utility theory was displaced by an ordinal utility theory, the size of the inequality $\Sigma p_2 q_2 > \Sigma p_2 q_1$ apparently became insignificant, because there was no way of answering the question: "How much better off?" This, if it applies at all, applies only to the individual. For the community, the size of the inequality is of importance, not in determining how much better off the community is, but in helping to determine whether it can be said to be better off at all.

It must now be noticed that, in the example given, the community is divided into two groups, rich and poor. Now if we consider the community as a single collective, or a small number of large collectives, the criterion $\Sigma p_2 q_2 > \Sigma p_2 q_1$, where the p 's are market prices, breaks down. Unless the groups considered are small in relation to the whole, market prices cannot be treated as constant, and therefore the condition $\Sigma p_2 q_2 > \Sigma p_2 q_1$ would no longer indicate that the goods of situation I were rejected in favour of those of situation II.

Moreover, to treat the rich and the poor as a collective group begs the whole question of distribution within the groups. Indeed, the criterion now means, if the number of groups is sufficiently numerous: "Could the group have chosen as a collective?" Now it is true that people, when considering the welfare of the community, do consider very vaguely a few broad social groups. But the endeavour to formalise this way of looking at the matter is hopeless. As soon as one tried to define the groups precisely, one would run into impossible difficulties, because people do not think of any precise groups, and because different people would have different rough classifications in mind. For such reasons as these there does not seem to be any good ground for ceasing to subdivide the community until we have as many classes as there are individuals. But equally, if we do go as far as this, then we run into inconsistencies, for hardly any individual chooses all the goods he consumes, and some choose none of them.

Thus far it has been tacitly assumed that the community under consideration is an unchanging group. This is obviously unrealistic. In practice the constitution of the group will be different, even after a very short period. It often seems to be forgotten, when considering criteria of welfare, that people die and are born. If we are considering whether we are better off than our grandfathers, it is silly to ask whether everyone could be made as well off as they were before. Logically, it

is just as silly to ask the same question when we are considering whether the welfare of the community has increased over last year. If a group is changing in composition, one cannot seriously consider the question of its welfare without making interpersonal comparisons. This conclusion is also borne out by the fact that no one would suppose that it was a *necessary* criterion that no one should be harmed. Yet such an attitude can only be justified by making interpersonal comparisons.

These considerations make it quite clear that it is impossible to find any precise meaning, in terms of actual individuals or groups of individuals, to the condition $\Sigma p_2 q_2 > \Sigma p_2 q_1$ as applied to national income figures taken at market prices. The attempt to find such a meaning which would be acceptable as a definition, or a sufficient criterion, of an increase in welfare, is an even wilder goose chase.

Some people may try to discover firm ground by an appeal to a 'common-sense' personification of the community. They might say that this super-individual could have what he had before so long as the condition $\Sigma p_2 q_2 > \Sigma p_2 q_1$ holds. But if this is said, it is clear that market prices are no longer relevant. We would then be concerned with the National Income at factor costs, i.e., with the question: "Could last year's goods have been produced this year?" Discussion of this possibility will therefore be deferred to the next section of this article.

Before dealing with the national income at factor costs, it is necessary to be clear as to that about which I am being sceptical. My conclusions are, first, that a clear meaning in terms of actual individuals or groups cannot be given to a comparison of national income figures at market prices. Secondly, that even if it could be, it could never make an acceptable criterion or a definition of an increase in welfare, if only because it abstracts from the distribution of income; and the majority of people would never accept a criterion which ignored this most important element of their welfare judgments. I do not however doubt that if, during a short period, $\Sigma p_2 q_2$ became much greater than $\Sigma p_2 q_1$, then most people would want to say that economic welfare in the second period was greater, unless there had been a very great change in distribution. The point is that they would not want to say it because some precise criterion had been fulfilled. Thus, while I deny the possibility of any such criterion, I do not deny that a series showing changes in real income per head might correspond with most people's estimates of changes in welfare. There is also some point in trying to arrive at the index which would give the best correspondence. What is perhaps more important than the question whether factor prices or market prices should be used, is the question what classes of goods should be included. Given the same classes of goods in each index, there seems to be very little reason to suppose that a market price index would provide any better correspondence with general opinion, than an index at factor prices, or vice versa.

Again, I do not deny that the consideration of some index of real income per head gives us some basis for making welfare judgments.

But, unless the change were great, most people would want to look further. To say that it gives us some basis for judging is very different from trying to make such an index yield up a universally acceptable criterion.

Since no precise criterion can be formulated, is there any longer any good reason for preferring market prices to factor costs? I think there are still reasons. We can imagine conditions in which it would become possible to say that everyone could probably be made better off without any change in production, because $\Sigma p_2 q_2$ was greater than $\Sigma p_1 q_1$, where the p 's were market prices. Such conditions are most unlikely ever to be realised, but the fact that they could be realised confers a slight advantage on the market-price index, because it makes it more general. Another better reason is that people, if using the index as a guide in making welfare judgments, would want it to refer to the prices people actually pay, because these are the prices they consider, if they consider any, when they think about the question of welfare. Finally, in the case of an individual, the index taken at market prices does have a perfectly precise meaning, which many people would be prepared to call a welfare meaning. Now although the general index cannot be given a *precise* meaning in terms of individuals, the individual is commonly held to be of importance, and the use of market prices is more consistent with this kind of social philosophy than is the use of an index based on factor costs.

These reasons are vague, but precise reasons can only be given if totally unrealistic assumptions are made. Trying to be too exact about a subject such as welfare breeds scepticism. It is soon discovered that the precise analysis breaks down, and there is a danger that the conclusion is prematurely drawn that the whole study of such a subject is bogus and not worth while—which is false.

PART II. THE NATIONAL INCOME AT FACTOR COSTS

If the "happiness of the community" is regarded as a heterogeneous collection of individual happinesses, none of which is commensurable with any other, then it follows that the happiness of the community cannot be said to be greater if any individual happiness is less. It is from this logic and not from an exaggerated humanism that the view springs, that welfare cannot be said to be increased if any individual is harmed. We have seen, however, that ordinary judgments, to the effect that welfare has increased, are made although some individuals are harmed, from which it follows that "the happiness of the community" cannot be a way of referring to a collection of individual happinesses.

Nevertheless this view of the happiness of the community is instructive, for it is exactly paralleled by the production of the economy. The social product is a heterogeneous collection of kinds of goods (themselves regarded as homogeneous). Therefore corresponding to the view that no one must be harmed if welfare is to be said to be greater, there is the view that the product cannot be said to be greater, if the

output of any kind of good has decreased. Corresponding to the view, that welfare can be said to be greater if losers could be compensated, and still someone remain a gainer, there is the equally paradoxical view that product can be said to be greater if the output of those goods, the supply of which has fallen, could be increased to their former level, while the supply of at least one good remains greater. Just as the former, on my view, could at most be called a potential increase in welfare, so the latter should be strictly called a potential increase in production, or an increase in productive potential.¹ Thus, if anyone believes that the happiness of the community is in the strict sense a heterogeneous collection, he cannot logically say that welfare has increased if anyone is harmed. But whereas it was held that any attempt to give a phrase such as "the happiness of the community" so precise a significance is mistaken, there is no reason why production or output should not have a precise significance, because, although nothing very definite is usually meant when it is said that production has risen, there is in this case no reason why an economist should not produce a precise definition, since there are no ethical implications and therefore no definition is likely to produce intense opposition.

Now an index of national income at factor costs is attempting to give an answer to the question: "Could this year's production be so re-arranged that we could have as much of everything as last year, and more of at least one thing?" Thus, strictly speaking, it is measuring production potential. Whether or not it is for short called an index of production is not very important, so long as it is clear what question it attempts to answer.

Now it is clear that, if the production-potential measure is telling the truth, then it must be possible to give everyone as much of everything as they formerly had, and some more. Consequently, the production-potential index appears at first sight to be a far better guide to welfare than the national income at market prices, because, if this index is really answering the question it sets out to answer, then we *know* that some could be made better off without making others worse off. Whereas if market prices are used, we have seen that we cannot ever know this for certain. The difference is that, with the production-potential index, a redistribution of production is presupposed. If, however, one may say welfare had risen because a redistribution of income *could* make some better off and none worse off (and this appears to be the generally accepted criterion among economists), then one might as well throw in a hypothetical redistribution of production as well. Thus it

¹ Mr. Hicks, in the article cited, wrote of social income and productivity with reference to this measure. But productivity is usually taken to refer to the amount of goods produced for a given quantity of resources. If all kinds of resources are meant, there cannot be such a thing as a measure of productivity. The various factors can only be weighted by their prices. Thus a measure of the amount of resources used is identical with the measure of production potential discussed. The name production potential brings out the fact that it can alternatively be regarded as a measure of the amount of product, in the sense defined, or the amount of resources used. Questions as to productivity can therefore be significant only in relation to the amount of a single fact or used, e.g., man-hours.

is not very clear why the new welfare economists regard the measure at market prices as *the* welfare measure, unless it is because the production-potential measure cannot be relied on to answer the question it aims at answering, for the reasons which Mr. Hicks has stated in the article referred to.¹

It may also be remarked that, for those who believe in collectivism to an exaggerated degree, the production-potential measure is also the welfare measure, because the question they wish to answer is: "Could the community choose what it had before?" This is also of course true for those who wish to dodge, by personifying the community, the pitfalls of a measure taking individual choices into account. It might be objected that a redistribution of production may involve people moving to jobs they like more, or less. Thus if a person chooses to move from a highly-paid to a low-paid occupation which he otherwise prefers, the index shows a decline in productive potential. But this disadvantage is shared by the market-price index, which would also show a decline in welfare if such a move occurred. Both indices assume that factors are indifferent between different occupations. However, for the reasons given above, I think that, for an individualist economy, the market-price measure is probably to be preferred as the best guide to welfare.

Professor Kuznets, however, argues in favour of the identification of the two measures; he holds that true marginal costs² are better represented if indirect taxes are added on (and presumably subsidies subtracted). The presumption is that the cost of free government services to firms can be equated to the amount of net indirect tax paid. The other argument in favour of the identification of the measures is as follows:³ "The widespread tendency to identify social income as a measure of welfare, with social income as a measure of productivity . . . is grounded upon the sound notion that the 'product', taken as the yield of resources, cannot differ from the welfare equivalent, for the simple reason that the latter represents the positive result of the use of resources, and that resources have no weight independent of the positive result of their employment".

If I interpret this passage correctly, Professor Kuznets is saying that production means welfare production, and that therefore a measure of welfare is *ipso facto* a measure of production. But in that case there is no need to produce arguments to show that indirect taxes may be equated with government intermediate services. Whatever measure is thought to be the best welfare measure would automatically be the best production measure. However, even if welfare were the only end of the community, there could still ideally be a market-price measure, which would measure potential changes in welfare, their realisation

¹ Op. cit. pp. 121, 122.

² It may be noticed that relative marginal costs do not necessarily measure the rate at which one good could be transformed into another. It is only in so far as they do measure transformation rates that they are ideal for a (short-run) index of productive potential.

³ Op. cit. p. 124.

depending on a redistribution of income, and potential changes in welfare, the realisation of which would depend on changes in production as well. But welfare, or at least current welfare, is not usually considered to be the only end of the state.

It is also theoretically possible to have a measure of production which is neither a measure of welfare nor a measure of productive potential. In a purely collectivist economy, of which the sole end was the winning of a war, the goods produced could be weighted by their importance for winning the war, the importance being determined by the beliefs of the collective. There would however be no way of discovering these weights, except on the assumption that production was wisely ordered, in which case marginal costs would be the weights, and the measure would coincide with that of productive potential. We may conclude that, for all practical purposes, there is no such thing as a measure of production, independent both of a measure of productive potential, and of a measure of welfare—but that these two latter may be distinct.

These two measures would still be conceptually distinct but would in practice coincide if national income as a measure of productive potential was arrived at by weighting the factors by payments to them, *less* direct tax, *plus* final free public services (i.e., national income = rent, interest, profits, wages and salaries *less* direct tax *plus* final public services). But unless every change in the total of indirect taxes, whether the result of fiscal change or of a switch in production to or from goods bearing indirect tax, was associated with an equal change in the value of intermediate public services, there being no resultant change in direct taxation, this measure would show a change in productive potential which would *ex hypothesi* be incorrect, since there would have been either no change in production or a change which was exactly reversible.

On the other hand, if there was an autonomous increase in essential intermediate services without either an increase in indirect tax or a budget deficit, Professor Kuznets's measure would show a decline, since direct taxation would have to increase. This would be correct because the previous output of final goods could not be reproduced. Moreover the usual productive-potential measure would show no change. It would seem, however, that the usual index would more often be the better, and therefore Professor Kuznets's claim that the best welfare and productive-potential measures coincide does not appear to be established.

PART III. COMPONENT PARTS OF THE MEASURES AND SAVINGS

It may be worth while to consider the significance of National Income measures in relation to each of three sectors which may be roughly distinguished in any actual economy :

- (a) a sector the end of which is 'war' (i.e., non-welfare), the goods being ordered collectively ;

- (b) a collective welfare sector ;
- (c) a sector the goods of which are individually chosen (i.e., by definition a welfare sector).

Let us also at first assume that there is no saving in the economy.

As far as a welfare measure is concerned it follows from the definition of sector (a) that it must be ignored. In sector (b) the only correct welfare measure is identical with the production-potential measure, while in sector (c) it has been argued that the best measure uses market prices as weights. The question arises as to the justification for adding the two together. The orthodox view ascribes an entirely different precise meaning to each measure ; it follows that the addition makes no sense whatever, except on the very dubious *ad hoc* assumption that publicly provided goods would fetch their cost price on the market. It is here contended that the welfare measure in sector (c) has no precise meaning anyway, and therefore we can cheerfully add the two measures together since what we are looking for is a good guide to current welfare, and not some index which can be given a precise meaning. After all, collectivist elements intrude into the individualist sector to a not inconsiderable extent. Our object is then to find the best guide to changes in welfare, and there cannot be any doubt that it is better to add sector (b) to sector (c) rather than leave it out altogether, if a single measure is wanted. But since the market-price measure and the factor-cost measure roughly correspond to very different social philosophies, and since the goods are distributed in an entirely different manner in the two sectors, one can argue that two indices would be a better guide than one. As far as the factor-cost measure is concerned there is no difficulty about adding the three sectors. Indeed, for this measure no special interest attaches to the division of the economy made above.

We must now consider savings. First, in arriving at the factor-cost measure, investment should be included in the relevant sector. There is no theoretical difficulty about this. Secondly, it is clear that savings cannot be left out of our welfare measure. No one would want to say that people are worse off because they decide to save more. Savings, in so far as they result from current choices, must be considered to contribute to current welfare. But all saving, except saving by public bodies, arises in the individualist sector. (Admittedly, there are private collective savings, but as has been emphasised before, perfectly clear-cut lines of division are impossible. The two collectivist sectors together must be taken to apply to what is usually called the public sector of the economy. This broad line of cleavage is less distorted by the adoption of the fiction that undistributed profits are individual savings.) Therefore it would appear that all such savings are, for welfare purposes, to be included in the individualist sector, whatever the class of investment to which they correspond. This means excluding investment designed for the production of goods of

sector (b) from sector (b). This is not however altogether paradoxical, for current investment, as opposed to saving, has no relevance to the present happiness of individuals so long as they believe that their savings will retain their value.

Professor Kuznets adopts an entirely different view of savings. He believes that the decision to save should be regarded as a decision to make some real investment. He then suggests that the investment total and the consumption total may be added, because the value of capital goods is in theory the discounted value of their future yields. He considers that this treatment approximates better to the true meaning of savings decisions. It is difficult to agree with this, for a decision to save is independent of, and by no means always accompanied by, a decision to invest.

Professor Kuznets writes¹ "We must value in terms of current welfare also such parts (of total output) as represent a net addition to (or a net draft upon) the country's capital, whether under private or public auspices". But surely, if an appeal has to be made to future yields, that is precisely what we have not done. The expected future 'yield' of an individual's savings is based on the rate of interest, and the price level of consumption goods, now and in the recent past. It seems to me that we approach more closely to the meaning of individual decisions to save if we adopt the alternative view that a decision to save is a decision to accumulate purchasing power over future goods of the kind available in the saving situation. This view is consistent with adding in private savings to the welfare sector, without requiring any elaborate assumptions about the relation of the discounted value of the yield to the present value of resources. The only practical differences between these views are: (1) that, on the present view, public saving should be excluded from the welfare measure, and (2) that the income totals should be deflated by a price index comprising consumption goods only.

Both views have however a common disadvantage. In a time of rising prices, caused perhaps by the devotion of much investment to the war sector, the value of people's savings falls. Some people would then probably want to say that saving was only an illusory contribution to welfare. They would want to make a distinction between their being really better off, and their only thinking they were better off. This however raises all the difficulties associated with assuming that $\Sigma p_2 q_2 > \Sigma p_2 q_1$ is an adequate measure of individual welfare, which there is no space to discuss here. The most that one can say is that so long as one lays emphasis on individual choices, it seems more consistent to accept the view that savings contribute to current welfare, whether they are being used to finance battleships or consumption-goods factories, and our discussion of the welfare measure for the predominantly individualist sector of the economy is based on the assumption that great emphasis is laid on individual choices.

¹ Op. cit. p. 13.

It must however be admitted that the above discussion is very academic, for it is most unlikely that a budget surplus or deficit would in normal times make sufficient difference for it to be reasonable to suppose that one treatment would result in a better guide to welfare than the other. Under abnormal conditions, such as a very severe inflation, no measure based on a quantity index would be of any value. The condition $\Sigma p_2 q_2 > \Sigma p_2 q_1$ would have little relevance even in relation to an individual's welfare if prices were changing very rapidly, and no relevance to the welfare of the community unless it was at least known that the resultant large changes in income distribution were such as would be approved of by most people.

To sum this section up, the most consistent welfare measure for the individualist sector would seem to be private saving plus private consumption. There would be a separate collective welfare measure, consisting of public expenditure on *final* welfare goods and services at cost. The question what kinds of goods should be said to be welfare goods and what kinds 'war' goods is a matter of opinion; but although such a division is bound to be arbitrary, there are certainly some products which most people would not want to class as welfare goods or services. Roughly speaking, one might fit into this category those goods and services which are not individually chosen, and would not be regretted by many people if a diminution of them did not tend to a reduction in the amount of any other kind of good—for instance justice, police and defence (and perhaps some education).

PART IV. CONCLUSION

In conclusion we may sum up the meaning, in real terms, which can be attached to usual national income totals and their comparisons over periods of time, and the suggestions made as to the best welfare measure. First, it is obvious that the totals themselves have no significance. Therefore, the common contention that they should be invariant to purely financial changes has no real basis.

Secondly there is no suggested change to be made in respect of the usual "net national income at factor cost" concept. The trouble with it is not that it tries to answer an impossible question, but that it cannot be relied on to give the right answer. There is, in this connection, no need to add anything to Mr. Hicks's warning as to the shakiness of the theoretical basis for giving a real interpretation to comparisons made between periods on this basis. It has, however, been pointed out that this measure is also the welfare measure for a person who believes in discussing the welfare of a community as though that community was a person.

Thirdly, no precise meaning in terms of individuals can be given to aggregate expenditure on goods at market prices. A measure of welfare has no meaning in this sense. Nevertheless, the "welfare of the community" is a phrase whose meaning is not merely emotive or

normative. It has an essentially vague connection with "the happiness of individuals". Within certain limits, therefore, it is possible to discuss objectively what the best guide to welfare is, because there is plenty of evidence as to what is, and what is not, relevant to a person's happiness. This is true in spite of the fact that the word 'happiness' itself is not entirely free from ethical flavour. Where agreement is most likely to break down is where an ethical interest in the value (ethical) of certain changes comes in, involving probable alterations in different individuals' happinesses. Even when considering an unchanging group of individuals, in which case a probability inference in terms of each individual's welfare could be drawn from $\Sigma p_2 q_2 > \Sigma p_1 q_1$, no sufficient criterion, which would be applicable in any real situation, could be formulated which would necessarily suffice to abstract from all ethical issues, and which would therefore be universally acceptable.

Lastly, on the basis of the limited objectivity discussed above, it was suggested that the best guide to economic welfare would be private consumption and private saving, to which could be added public output of final welfare goods and services at cost. Conditions and hours of work should also, of course, be kept in mind. Finally, it may again be emphasised that this measure only seems to me to be better because it is most consistent with the stress laid on individual choice, and not because it has any precise meaning in terms of individuals.

Economics of the Wheat Agreement

By H. TYSZYNSKI

THE recent International Wheat Agreement, signed last March in Washington,¹ requires careful attention on the part of economists from the analytical, as well as from the applied, point of view. By introducing a curious blend of guaranteed quantities, reserve buffer stocks and provisions for sale for nutritional programmes it constitutes an attempt at international regulation designed to reconcile two important aims of economic policy so often judged as incompatible: (1) the assurance of a greater degree of income stability; (2) the expansion of the volume of world trade. Its guaranteed purchases and sales create a new conception of 'minimum quotas', and are of great theoretical interest. In the field of applied economics the importance and the 'fresh approach' of the Agreement can hardly be over-estimated. Wheat is one of the most important primary commodities in world trade, and although the Agreement was not universal (Argentina and Russia have declined to join), it covered 36 countries: 3 major exporters and 33 importers. The participating exporters represented some 84 p.c. of the estimated wheat trade in 1947-48.² Undoubtedly, if implemented, it will constitute a great experiment in world economic co-operation and the fact should be emphasised that it is the first comprehensive post-war commodity agreement.

After a brief note on the origin of the Agreement and a summary of its provisions, some attempt will be made to review its main aspects, and in particular it will be compared with other schemes in its estimated effect on income stability and world trade.

I

Historically, the present Wheat Agreement had two predecessors: the 1933 International Agreement which failed after a few months of operation, and the 1942 Draft Wheat Convention which has never been implemented.

The 1933 Wheat Agreement was fundamentally based on allocation of export quotas to principal producers. In addition, exporters undertook to curtail acreage, and importers not to encourage expansion of wheat production, these provisions being, however, rather vague. There was no attempt at price regulation except the undertaking of importers to reduce import duties if the wheat prices rose to a specified level.

Because an unexpected bumper harvest and lack of storage facilities induced Argentina to exceed her quota the agreement broke down

¹ But not, so far, implemented because of an insufficient number of ratifications.

² See figures published by the *Economist* in the issue of March 27th, 1948.

within a year. Later, American short crops and a general rise of agricultural prices caused international wheat regulation to be shelved until bumper crops in 1938 brought the whole problem back again into the limelight. During all this period a Wheat Advisory Committee continued in existence. There is great likelihood that a new agreement would have come into operation in 1939, if the outbreak of the war had not interrupted the London Wheat Talks. This agreement would, in all probability, have gone beyond the first one by adding minimum price provisions to the export quota device.

In 1942 a provisional agreement was reached between the four major exporters (Canada, U.S.A., Argentina and Australia) and the United Kingdom establishing *inter alia* the International Wheat Council; it was supplemented by a Draft Convention conceived as a basis for a comprehensive system of world-wide wheat regulation to come into operation after the end of hostilities.

Although the present Wheat Agreement differs fundamentally in several respects from the Draft Convention, it may seem important to note the main provisions of the latter. These were three: (1) an undertaking by the exporting countries to institute production control so as to keep carry-over stocks within specified limits; (2) export quotas based on fixed relative (percentage) shares for participating exporters out of a revisable annual estimate of "the volume of international trade in wheat and flour in the current quota-year" (up to a specified maximum with 'secondary' and 'supplementary' quotas providing some flexibility); (3) minimum and maximum prices to be fixed annually by the International Wheat Council at the beginning of a quota-year with an undertaking by the governments of the exporting countries to prevent any shipments at prices outside these limits.

The restrictionist character of this agreement did not mainly arise out of its export quota provisions as such, for these could be extended in case of increased world demand. It lay in the fact of 'freezing' the geographical distribution of production by assigning fixed relative shares in world trade to participating exporters. Competition among surplus countries, according to their relative efficiency and the relative abundance of their respective harvests in a given year, would be greatly hampered by this provision. Some restrictionist influence would also follow from the clause that *all* wheat exports were to be kept within the price limits agreed. On the other hand there was no guarantee on the part of importers that they would purchase any specified quantity within the price range established.

Changed conditions at the end of hostilities (owing to much greater destruction of agriculture in Europe and Asia than anticipated, as well as to important reductions in American stocks during the last war years), with acute scarcity of wheat instead of expected abundance, led to the abandonment of the Draft Convention. The greatly enlarged International Wheat Council continued, however, its efforts to design a comprehensive wheat agreement, and the London Wheat Conference

of the Spring of 1947 led to the acceptance in principle of a new Draft Agreement. This could not be implemented, however, because of divergent views on prices.

Finally, a new Conference held in Washington last Winter successfully overcame the price deadlock, and the Wheat Agreement was signed in March, 1948, and scheduled to come into operation (subject to ratification by the governments concerned) in August. Although 33 importing countries joined in, two major exporters, Argentina and Russia, remained outside. As has already, however, been stressed, the three participating exporters (U.S.A., Canada and Australia) account for more than five-sixths of the present world trade in wheat. The Agreement has not come into operation because the U.S. Senate failed to ratify it last summer. It is, however, very likely that after new negotiations it will be implemented next summer.¹

II

The following provisions form the core of the new Wheat Agreement :

(1) *Guaranteed Export and Import Quantities Within a Specified Price Range.* Each participating importing country assumes the responsibility for purchasing a given quantity of wheat annually at not less than the minimum price established. At the same time each exporting country guarantees to sell a given quantity of wheat per annum at a price not higher than the maximum price agreed upon. By mutual agreement (or failing it by a decision of the International Wheat Council) the totals of the guaranteed import and export quotas are made equal. In this way, without allocation of groups of importers to particular exporters, each importing country obtains a guarantee of wheat supplies equalling its quota at a price *not higher* than the maximum one, while each exporting country is assured of selling its quota at a price *not lower* than the minimum established.

It is the duty of each participating country to report to the Council all transactions in wheat, as well as all actual imports and exports, respectively. The duty of the Council is to require the fulfilment of the assumed obligation by all parties. In case of short crops (exporters), or balance of payments difficulties (importers), some adjustment of the quotas by the Council is possible.

The aggregate quantity guaranteed under the 1948 Agreement amounted to 500 million bushels or to some 53 p.c. of the estimated total of world trade in 1947-48, and to well over 60 p.c. of the total exports of the participating surplus countries. (Assuming no change in the quota provisions when the Agreement is re-negotiated this proportion will tend rather to increase as European agriculture recovers.) Turning to the importing countries, signatories to the Agreement, the quotas

¹ With possible changes in the agreed price levels, etc.

would cover on the average some $3/4$ or more of their estimated total requirements. In the case of the U.K. the proportion would be even higher, the guaranteed quantity amounting to 180 million bushels as compared with actual imports for 1947-48 estimated early in 1947 at 190 million bushels and the pre-war (1934-38) average of 208 million bushels.¹

The maximum price was fixed last year at \$2.00 for the whole 5-year period for which the Agreement was to be operative, and was nearly 20 p.c. below the Chicago price current at the time of its publication. The minimum price fixed at \$1.50 for 1948-49 was to be reduced in every subsequent year by 10 cents until it reached \$1.10 for 1952-53. These prices refer to No. 1 Manitoba wheat in store Fort William—Port Arthur. A revision of the annual range (although not of the basic one) was made possible by a qualified majority.

(2) *Price Stabilisation Reserves.* Another feature of the Agreement is presented by "Price Stabilisation Reserves" to be accumulated (first by exporters, then by importers by means of additional imports) up to 10 p.c. of their respective quotas when the price falls below the minimum. These reserves should be operated on the 'buffer stock' principle and be sold or utilised whenever the price rises above the maximum agreed. By this means the proportion of wheat trade kept within the agreed price range would be still further extended.

(3) *Special Safeguards for Importers.* Minimum carry-over stocks are strictly defined for each exporting country and can only be drawn upon by special permission of the Council in an exceptional situation. These seem to provide an insurance to the importing countries against crop failures and shortages in general.

Another safeguard to the importers is provided by special allowances over and above the guaranteed quota in case of a 'critical need'.

(4) *Nutritional Programmes.* Sales for nutritional programmes approved by F.A.O. at special prices below the minimum agreed are envisaged with the permission of the Council and under its discretion. The Council may give its approval, however, only when the 'full commercial demand' during the period in question is being met at 'not more than the minimum price'.

III

In order to analyse a commodity agreement it seems important to scrutinise its provisions with reference to some broad goal of economic policy. In dealing with an agreement concerning 36 countries it is only fair to look at it from the point of view of world welfare.

The maximisation of world output at as low an opportunity cost as possible, implying the optimum allocation of fully employed resources,

¹ *Ibid.*

has probably been the least controversial of economic welfare ends. And, even if we accepted the opinion that economists have to assume a completely neutral attitude towards ends as such, this goal has by now been well established by several documents that have emanated from U.N. Conferences.¹ There also appears to exist a predominant body of agreement on the subject that an expanding aggregate volume of world trade parallel to an increasing world output is a fair indication that the latter is being achieved at low opportunity cost because of the advantages of an international division of labour.

An estimate of the probable impact of the new Wheat Agreement on the aggregate volume of world trade, and thereby on the efficient allocation of resources, is, therefore, of great analytical interest, although it may only be made in a very imperfect way at present.

A test in order to ascertain whether an agreement of this kind is of an 'expansionist' character should consist of enquiring :

(1) whether it will, in times of agricultural depression, stabilise the income from export proceeds of countries producing surpluses of primary commodities and thereby increase their demand for imports, and, in turn, in times of scarcity limit the 'essential' foreign expenditure of countries importing primary products and thereby prevent their aggregate demand for other imports from drastically declining ; and (2) whether the resultant changes in terms of trade and the allocation of resources will not cause a restriction of the volume of trade in the commodity concerned and disadvantageous repercussions in other fields of such a magnitude as to outweigh the above gain.

The limitation of this test is, of course, presented by its theoretical character. No precise measurement could ever be made even *ex post*, not to mention forecasting. Nevertheless, there are, at least, a few guiding principles that would indicate whether an agreement of a given type is less restrictionist (or more expansionist) than that of another.

There is no doubt, for instance, that rigid export quotas (as practised in all pre-war commodity agreements), are clearly of a restrictionist character. The lack of definite guarantees to consumers in times of scarcity is a further indication of this. Even the more flexible quota provisions of the 1942 Draft Wheat Convention², by fixing relative shares in the world market for each exporting country would, undoubtedly, have hampered low-cost producers and shielded high-cost ones at the expense of consumers.

Guaranteed quantities, within annually changing price limits, to both exporters and importers, conceived as minima and not maxima, from an 'expansionist' point of view render the 1948 Wheat Agreement incomparably superior to former quota schemes.

Similarly, these provisions seem to make all the difference when we compare the Agreement with a multilateral bulk purchase in a strict

¹ e.g., Havana Trade Charter, Cmd. 7375 (1948); see also Cmd. 7212 (1947).

² Summarised briefly above in section II.

sense. Following the definition by Mr. A. G. Henderson¹ the latter would imply: (1) one contract price and (2) fixed total quantities. Even on his alternative 'broader' definition assuming a fixed contract price only, the restrictionist character of a "wheat exporting monopoly" facing a "wheat importing monopsony" would clearly be evident. According to the principles of Dr. F. W. Meyer's analysis:² (1) the demand for wheat is inelastic for it is an essential product and substitutes are not easily available; (2) wheat is a 'short' crop and, therefore, the elasticity of its supply should be higher than for some other agricultural crops;³ (3) the demand for mainly manufactured goods, for which normally surplus wheat exchanges abroad, is more elastic than that for wheat. In such a case monopolistic bargaining for a single price would seem to give the bargaining advantage to exporters, so that the refusal of Argentina and Russia to join the agreement would be a real blessing to wheat importing countries.

So far, however, it has not been shown how a flexible and multi-lateral long-term contract of the Wheat Agreement type would compare with an International Buffer Stock Scheme. In any case, the evidence that it is less restrictionist than many other types does not yet prove that it represents a happy solution of the wheat problem.

The crucial task, in this respect, is to consider: (1) its effect on the balances of payments; (2) its impact on incomes of wheat producers and consumers as well as on incentives to produce and consume wheat; (3) the ensuing repercussions in other fields of production and therefore on the distribution of resources between alternative uses. In this analysis a comparison with the probable effects of a Buffer Stock Scheme appears very helpful.

IV

(1) *Effect on the Balances of Payments.* What does the Wheat Agreement tend to stabilise: the income of wheat producers and the expenditure of consumers, or the foreign currency receipts and payments of the participating countries in connection with their trade in wheat?

The direct impact of the Agreement is undoubtedly on the balances of payments, while the effect on the incomes of producers and the expenditure of consumers will finally depend on the measures taken by governments to fulfil their obligations. The quantitative guarantees given by exporting and importing countries necessitate some form of governmental action as soon as the market price fluctuates above or below the established price limits for such a period that the fulfilment of these guarantees is endangered. Different measures, such as subsidies, state trading, internal buffer stocks may, however, be compatible with the Agreement, and the resultant effect in a given country

¹ Applied to bilateral bulk purchase in his article in the February, 1948, issue of *Economica*.

² In his article, *ibid.*

³ e.g., tree products like coffee or rubber.

on producers' and consumers' incomes would vary according to which of these devices were adopted. The Agreement does not by itself, therefore, prejudice the issue in that respect. On the other hand, its effect on the balances of payments is much more direct and determinate.

Importing countries are assured of a limit to their expenditure (price \times quantity) covering some $\frac{2}{3}$ of their estimated volume of requirements, and in a similar way the surplus nations have a definite guarantee of foreign exchange earnings from sales of wheat covering over $\frac{2}{3}$ of their estimated exports.¹ Importing countries will be able to buy more of other imports in times of scarcity with the Agreement in existence than in its absence, and so will the wheat exporters in times of depressed prices. In this way the effect of the Agreement on the balances of payments is clearly advantageous from the point of view of world trade expansion, and the fact that the guarantees do not cover the whole trade in wheat diminishes the change in the terms of trade induced by its operation. Although the volume of the wheat trade may be lower than in a free market, it will be much larger than if total quotas or rigid market shares are fixed.

It would, however, be mistaken to assume that because of its quantitative provisions the Wheat Agreement would *prima facie* give more stability to the balances of payments than an International Buffer Stock Scheme² fixing price limits only. The International Buffer Stock Agency is normally conceived of as an unlimited buyer at the minimum price, and an unlimited seller at the maximum one. It is also fair to assume that it would discharge its payments in convertible currencies. Thus as long as it were able to fulfil its obligations, the International Buffer Stock Agency would be a better 'stabiliser' from the balance of payments point of view. For in that case exporting countries would at all times be able to sell their entire crop at a price not lower than the established minimum, and the importing countries to satisfy all their demand at a price not higher than the upper limit. Under the Wheat Agreement the position would be different: after the guarantees were fulfilled by importing and exporting nations, respectively, the sellers would in times of depression be confronted with a steeply falling lower section of the demand curve, and the buyers in times of great shortages with a steeply rising upper section of the supply curve.

We know, however, that the operations of a Buffer Stock Agency are in fact limited: by the size of its stock in times of scarcity and by its financial resources in times of depression. Certainly, the Scheme

¹ The present quantitative restrictions on imports do not make an estimate of free market quantities possible. It seems, however, fair to assume on the basis of pre-war data, etc., that the guarantees cover well over half of the probable free market trade of the participating countries.

² The comparison with an International Buffer Stock Scheme is pursued throughout this discussion in general terms, as if it were already established and functioning. For analytical purposes the obvious fact that it could not be set up in the present period of scarcity may be neglected.

would most likely contain provisions for a periodical revision of the price limits, and the question of adequate financial resources in times of depression could somehow be settled. But nothing could prevent a break-down of the Scheme in times of acute and lasting scarcity unless the upper price limit were very frequently revised and this would, in fact, mean that the Scheme had ceased to operate. If we imagined, for instance, an International Buffer Stock Authority established during the great depression, it would be very doubtful whether its huge stocks accumulated before the war could be saved from complete exhaustion in the post-war years, if the maximum price were not raised at very short intervals.

In times of such an acute scarcity the definite quantitative obligations of individual governments assumed under the Wheat Agreement appear to give more assurance of workability and, therefore, more assistance to the balance of payments problem.¹

It may seem fair, therefore, to conclude that the International Buffer Stock Scheme would be more stabilising from the balance of payments point of view than the Wheat Agreement *except* in times of a lasting maladjustment, and in particular in those of scarcity (this exception being an important qualification).

(2) *Primary Impact on Incomes and Incentives.* It has already been stated that the effects of the Wheat Agreement on individual incomes and incentives to produce would depend upon the various measures participating governments adopted in order to implement it. We shall first discuss the probable primary effects of these measures and then give some attention to the secondary repercussions through changes in the distribution of income. It may be useful to consider the first problem confronting us in two stages: (a) the case of scarcity, and (b) the case of agricultural depression.

(a) *Scarcity.* If in a free market the price tends to establish itself above the upper limit² within a short-run period (i.e., one crop year in this connection) this may be entirely the consequence of an excess demand at the maximum price resulting from a physical scarcity of wheat.³ The supply, even in one crop year, can not, however, be taken as fixed, and an elasticity of supply greater than zero must be assumed for two reasons: (1) the possibility of storage by dealers⁴ or farmers because of elastic price expectations,⁵ (2) the existence of alternative uses of wheat for the producer himself (as feeding stuff for livestock)

¹ A remark may here be added that a lasting scarcity should not be thought of as possible only in the aftermath of a major war. As will be pointed out below it may result from disincentives to produce caused by the operation of an ill-advised scheme.

² Apart from daily and seasonal fluctuations.

³ Export prohibitions to non-participating countries are one way of dealing with it.

⁴ So far as high prices are due to "gambling" speculation on Commodity Exchanges we may assume that these would adjust themselves within a short period unless supplies were actually withheld from the world market for sale in the following crop years.

⁵ Rising prices in the given crop year being taken as an indication of a further rise in the subsequent year.

which compete with the 'commercial' use represented by the supply to the market. The deficiency of the supply at the maximum price¹ may, therefore, be a powerful contributory cause, if not the principal one.

We may limit our brief discussion of possible governmental measures in the exporting countries to four alternative devices: (a) state trading, (b) subsidies to farmers, (c) export subsidies to traders, (d) internal buffer stocks.

State trading (which does not need to take the form of a monopoly² and may be restricted to guaranteed quantities) would involve buying at a higher price and selling at a lower. Like subsidies to farmers it would give them the "premium for scarcity", and the Agreement would not show any 'stabilising' effects on their incomes. The result would be even more pronounced if these losses or subsidies were not financed from general tax revenue but from state profits and export taxation, respectively, in times of agricultural depression.

Export subsidies to traders, assuming competitive conditions, would be passed on to farmers unless the deficiency of supply at the maximum price were mainly caused by dealers withholding wheat from the market because of expectation of a higher price in the future.³ In the latter case, however, the effect of the Agreement would be neutral on farmers' incomes and the whole problem confined to the question of improvements in the organisation of marketing. It appears, therefore, that only through internal buffer stocks would the farmers, in fact, be deprived of the "premium for scarcity" they would have enjoyed in the absence of the Agreement.⁴ It is obvious, however, that the Buffer Stock Agency could not 'dump' any wheat on the market unless it had been established in a previous period of abundance. And what is more important, even assuming its effective functioning, this 'dumping' would, *ceteris paribus*, give a great incentive to farmers to use wheat as feeding stuff and hamper thereby the intended price fall.

In the long run, although the maximum price may be altered, it is possible to imagine a case in which it would be, during a few years, constantly below the free market price for each annual period. Then the result would be similar to that in a short-period scarcity: state trading and subsidies would provide the farmer during the continuing scarcity with the necessary incentive to produce wheat by giving him his 'quasi-rent' while internal buffer stocks (if they were sufficient in size to survive) would deprive him of his premium and, at the same time, induce him to switch to other crops substitutable in production.

¹ As contrasted with *physical* scarcity.

² If it did, bilateral bulk purchase within the scope of the multilateral Agreement would probably ensue. The relationship between the Anglo-Canadian and the International Wheat Agreement is a case in point.

³ These expectations being *either* not shared by the farmer *or* the latter being unable to give effect to them because of lack of liquid funds or facilities of storage.

⁴ It should be noted, however, that a state monopoly buying at *fixed prices* would also deprive farmers of the "scarcity premium".

In relation to consumers in an importing country, assuming free market competition between importers, the effect of the Agreement should be to lower the price in times of scarcity and have, therefore, a stabilising effect on their expenditure.¹ This will not, however, obtain, if the government applies subsidies in times of depression and finances them out of indirect taxation in that period of scarcity or indulges in state trading and covers losses during one period by profits in another. As these measures are in fact probable, and perfect competition between importers unlikely, the stabilising effect of the Agreement on consumers' expenditure seems very doubtful.

Turning to the International Buffer Stock Scheme we may notice that it does not require any internal governmental measures for its implementation because of the absence of any quantitative guarantees. Assuming competitive market conditions the stabilising effect would work directly on consumers' expenditure and farmers' incomes. It has already, however, been noted that in case of persistent scarcity the danger of a break-down of the system is much greater than in the case of the Wheat Agreement. What is even more important, in the short run, the forcing down of the price would not be limited quantitatively and would affect the whole wheat supply coming to the market, giving, therefore, greater incentives to farmers all over the world to feed wheat to animals. If the scarcity were expected to continue, it might also give an incentive to store wheat in the hope that the maximum price would be revised upwards for the next period.

From the longer-run point of view the crucial aspect is whether the Buffer Stock would remain confined to wheat or would encompass simultaneously alternative crops. In the former case its disincentives to production of wheat would be even greater, in times of continuing scarcity, than under the Wheat Agreement.

(b) *Agricultural Depression.* With the free market equilibrium price below the established minimum, our attention shifts to the importing countries and the measures their governments intend to take in order to fulfil assumed guarantees. Most of the above analysis of a period of scarcity seems to remain 'inversely' relevant in this connection, but the case is not entirely symmetrical.

Internal buffer stocks, even if they could be established in an importing country, would not serve the purpose, for the guaranteed purchases must be made abroad and the average share of an importing country in the world market is small.² An exporting country, on the other hand, could operate such a stock internally by merely prohibiting wheat imports in times of depression (and banning exports to other

¹ In times of acute world-wide shortages internal price control or rationing in the importing countries would most likely be required to pass on this benefit to consumers.

² Even U.K.'s share does not exceed 20 p.c. at present. Only by rigid import controls could a wheat importing country operating a National Buffer Stock prevent traders from buying abroad at the world price and re-selling at the higher minimum price to the N.B.S. Agency. After the guaranteed quantities had been bought at the minimum price, the world price would drop during a depression and render these operations profitable.

surplus countries, in times of scarcity, in case they do not operate similar stocks). In this way it might assure the fulfilment of its obligations in times of scarcity and stabilise the incomes of its farmers in boom and depression. Subject to all difficulties of operating such a Scheme (discussed in sub-section (a) above), it may be added, that if all the three participating surplus countries established such a scheme there would probably be no need at all for internal governmental measures in the importing countries. Even if one of the participating surplus countries did establish it, this necessity would be diminished considerably.

Assuming the necessity of such governmental measures in importing countries the contrast between the short and the longer run would be of the following character. In the former case subsidies or some form of state trading would be necessary, while in the latter, if the principal cause were a general deficiency of demand, the objective might be achieved through indirect means such as nutritional programmes coupled with full employment policies. If the 'deficiency' of the demand for wheat were not of a cyclical, but of a more permanent nature, only a downward revision of the lower price limit could be helpful.

The effects of the Wheat Agreement on incentives to consume are best considered in contrast to those of the International Buffer Stock Scheme. In this respect a buffer stock operated jointly by exporters under the Wheat Agreement would be similar to the latter. The quantitatively limited guarantees of the Wheat Agreement would give opportunity for the consumers' demand below the minimum price to become effective irrespective of whether subsidies or state trading were resorted to. In the case of the buffer stock that demand would remain 'potential', and a greater part of the aggregate consumers' surplus would be taken away. Furthermore, the extent of the loss to consumers under the Wheat Agreement would, as has already been stated, largely depend on the methods of financing the subsidies or losses of state enterprises.

On the whole, therefore, the International Buffer Stock Scheme would give a greater measure of stability to incomes of producers and to consumers' expenditure. The Wheat Agreement, however, leaves more scope for incentives to produce in times of scarcity, and incentives to consume in times of depression, and because of quantitative guarantees assumed by individual governments is less likely to break down under stress.

(3) *Secondary Repercussions.* It is not possible here to discuss all the probable repercussions on the distribution of income and the allocation of resources of the various measures that might be adopted by individual governments to implement the Wheat Agreement.

There is no doubt, however, that under the Agreement each government may adopt a different measure of control in order to fulfil the

assumed guarantees. The resultant interference with the allocation of resources is bound to be considerably greater and less determinate than in the case of an International Buffer Stock. So far as wheat itself is concerned the limited price range guarantees give more scope to the supply and demand conditions than the unlimited guarantees of the Buffer Stock, but the implementation of the quantitative guarantees by a host of varying governmental measures would most certainly shift the allocation of resources away from the optimum. In the long run in both cases a great deal would depend on the 'appropriate' fixing of maximum and minimum prices in each period. But in the case of a Wheat Buffer Stock, because of its more adverse effect on incentives, it may seem even more important to institute similar schemes for commodities alternative in production, to keep some measure of control over relative price movements. A network of buffer stocks would, however, probably be more compatible with an optimum allocation of resources than a network of schemes following the Wheat Agreement pattern.

V

To conclude these few remarks it may be said that the Wheat Agreement is definitely more compatible with the broad goal of an expanding volume of world trade than export quota restrictions, fixing of relative shares in the market or a rigid multilateral bulk purchase.

It is, however, more difficult to strike a balance between this Agreement and an International Buffer Stock Scheme. In general, the main advantages of an efficiently functioning Buffer Stock are as follows: (1) greater stability to the balances of payments; (2) a direct stabilising effect on incomes of farmers and consumers' expenditure; (3) less interference with the allocation of resources through secondary repercussions.

The Wheat Agreement, on the other hand: (a) is *less* likely to break down in times of a lasting maladjustment; (b) gives more incentive to produce wheat in times of scarcity and to consume it in times of abundance by leaving more scope to the normal market forces to determine its actual price in these periods.

An opinion may, however, be ventured that a 'half-way house' between these two systems (viz.: the Wheat Agreement provisions supplemented by a buffer stock jointly operated by the participating exporting countries) may prove the best long-run solution to the wheat problem from the analytical point of view. None of the importing countries would then have to institute any governmental measures for the implementation of the scheme save in most exceptional circumstances, and the danger of misallocation of resources would accordingly be greatly diminished. The stabilising effect on the balances of payments would be combined with that on incomes of producers and expenditures of consumers. As long as alternative sources of

considerable importance were in existence quantitative guarantees of the importing countries would be necessary to assure that the buffer stock would not accumulate beyond certain limits in times of a great depression, and the guarantees of exporters would be a safeguard to importing countries in times of acute scarcity. In the latter periods the importers' quotas would also have their significance as guarantees of cheaper supplies by exporters to each individual importing country. If the buffer stock was then exhausted the importing countries could still reckon on the governments of the surplus nations resorting to other measures to implement their quantitative obligations. In addition, special sales for nutritional programmes could go a long way towards rendering more of the potential demand effective in times of abundance.

The problem of relative prices, alternative uses for wheat in the short run and alternative products over a longer period of maladjustment, would still remain important. A too frequent alteration of price limits could deprive the Scheme of much of its meaning, and an emergency resort to more direct measures or the extension of the Scheme to other crops might eventually prove necessary. These would, however, be extreme cases, and the main danger of the present Wheat Agreement—dozens of different governmental measures of control in the 36 participating countries—would be avoided.

Finally, it should be stressed that with present conditions of scarcity ruling out the setting up of an International Buffer Stock, the Wheat Agreement represents an attempt to 'correct' the price mechanism where it does not work smoothly (because of the 'unresponsiveness' involved) combined with a conscious and significant endeavour to limit the scope of interference with the forces of supply and demand. As such it should be welcome.

The Propagation of Ricardian Economics in England

By S. G. CHECKLAND

AMONG the post-Waterloo political economists the advocates of the complete Ricardian case were almost ludicrously few. So uphill was the task of conversion that on Ricardo's death in 1823 James Mill could write to M'Culloch that they were his "two and only genuine disciples".¹ But a catalogue of their opponents of varying degrees was formidable: Malthus, Lauderdale, Chalmers, Spence, Torrens, Rooke, Craig, Bailey, West, Thompson, Sinclair, Young, Comber, Sismondi, Wilson, Jacob, and many others. Of these dissentients nearly all were to remain unshakeable in their own ideas. Though a few, like Torrens, were open to a fuller conversion, they remained for the most part critics of the Ricardian system. This meant that in addition to being outnumbered, the New School found itself opposed by all the senior members of the science, with the sole exception of James Mill. Finally, the Ricardians were innovators in the debate; all the prestige of precedent went to their opponents. Most political economists and most members of the public had a real respect for the possibility of gluts resting not on a syllogism, but on past experiences; their tendency was to fear break-down rather than to shrug it off. Even M'Culloch conceded² that Malthus was in the line of Adam Smith in this matter. It is only when we reconstruct the forms of thought then current that we realise how extraordinary must have appeared the basic premise of the New School that consumption was co-extensive with production in any period of time worth considering.³ But in spite of all this the victory of the New School has assumed in latter-day eyes an air of inevitability.

Explanation on several planes seems possible. It might be argued that the Ricardian case was the 'truer' case, and thus won on 'merits' as an analysis. Or we can inquire as so many have done on the level of social and economic trends, and no doubt arrive at some variant of the theme that Ricardianism was a useful apologia for the rising industrial middle class. But these factors, even if their operation is conceded, are of a more long-term nature; they do little to explain the early victory of Ricardianism. The timing of events is not without interest from this point of view. For a brief period before and after the publication of Ricardo's *Principles* in 1817 his system was referred to as the New Political Economy; by the time the Royal Commission

¹ Alexander Bain: *James Mill: a biography*, 1882, p. 211.

² *Edinburgh Review*, "Ricardo's Political Economy," June 1818, p. 79.

³ Say compared the new approach to the revolution of Copernicus. (*Letters to Thomas Robert Malthus on Political Economy*, 1821, Reprint 1936, p. 3.)

on Agriculture of 1821 met it was widely known by that title. In the same year Macvey Napier incorporated the system intact in the famous Supplement to the *Encyclopædia Britannica*¹ then well embarked on its great vogue. From then on the adjective 'New' began rapidly to disappear and the Ricardian system soon became synonymous with political economy. In the space of something less than ten years a system had emerged from fragments and had assumed the stamp of orthodoxy. To account for this rapid ascendancy it seems necessary to turn to a third element at work which has hitherto been ignored and which is at least worth a place alongside the other two: the tactical aspect of what took place. It is our purpose here to abstract as far as possible from other elements in the Ricardian victory, and to treat it from the point of view of the state of the propaganda weapons of the day, the character of the parties to the debate, the ground on which they fought, and the manner in which they were deployed and used.

The conditions in which the debate took place had a profound effect on its outcome. It was conducted, as it were, in camera. Though a good deal of the writings of the contending parties had a fair circulation, there was no general appreciation that these pamphlets and books were the weapons in a battle of ideas moving to a critical stage. The public was for the most part ignorant of or indifferent to the synthesis to which these writings led. It was never required of Ricardo or Malthus or their several supporters that they should set forth their views in such a form as to earn the layman's support. The very intimacy and restraint of the exchange between Ricardo, Malthus, Say and others deprived contemporaries of a sense of what was at stake. The debate was closed and the winner decisively declared before the public really knew what was going on.

The results were far-reaching. The public had no sense of the fundamental cleavage among political economists—they were regarded as all of the same ilk; most contemporaries had little idea that there were basic differences between the New School and their rivals. Coleridge, in spite of the ubiquity of his interests, showed his ignorance of the fight put up by Malthus against the New Political Economy by lumping Malthus with his opponents.² Surely it is one of the unsung ironies of the nineteenth century that Coleridge should have chosen Malthus as an arch-enemy. Malthus' *Observations on the Effects of the Corn Laws*, 1814, is a statement from an economist's point of view of the kind of England for which Coleridge stood. But so violent was Coleridge's reaction to the principle of population that there was no room for discrimination between schools that accepted

¹ Supplement to the 4th edition. The author of this article was the ubiquitous M'Culloch. It embodied the lectures he had been giving in Edinburgh and London, and later formed the substance of his *Principles of Political Economy*, 1825, which was to hold the field as a textbook until the publication of J. S. Mill's *Principles* in 1848. The status of the Supplement to the *Encyclopædia* in the 1820's as a source of authoritative information was very great.

² *Specimens of the Table Talk of S. T. Coleridge*, ed. Grant, pp. 217, 325.

it, even though they might diverge widely on other issues. Similarly with Southey. He appears to have had no notion that Malthus, though less vociferous, was as much a traditionalist as himself.¹ Many a parliamentarian followed suit²; large sections of the working class did the same.³ Intimate friends of Ricardo and Malthus, even when, like Francis Place,⁴ they themselves were interested in political economy, failed to note the basic difference of view. George Pryme, peacefully delivering his lectures at Cambridge, hears not even the echo of a storm; in his *Recollections* he makes but a single reference to Ricardo, "who wrote a work on Political Economy, propounding some new points."⁵ Even Sismondi, who might have been expected to appreciate the position of the other objectors to the new orthodoxy, condemns in the same round terms Malthus, Say, Ricardo and M'Culloch. It comes hard on Malthus, after his crusade for the underconsumptionist case, that he should be lumped with his rivals for a rebuke of this kind: "These philosophers seem to me constantly to have put aside the obstacle which embarrassed them in the building of their theories . . ."⁶ The socialist thinkers, not surprisingly, made no distinction between Ricardian and Malthusian, an attitude for which the political economists of both factions were partly responsible. In destroying Owen with the heavy weapons of theory, Torrens carefully camouflaged the rift between the New Political Economy and the rest.⁷ Propagandists to whom political economy was a favourite butt belaboured all political economists with fine impartiality. Cobbett and the many authors of lurid pamphlets and journals did not stop to identify with any nicety their victims as they impaled them. Carlyle dealt political economy a powerful, indiscriminating, blow with the label, "dismal science". Satirists like Peacock and Tom Moore seeking victims for their rhyming did not discriminate either.

All this confusion led to a central, specious clarity—that all political economy was the same thing. Ricardo appeared to follow, without deviation or rival, in the straight line of Adam Smith. That there appeared to the public to be this unanimous and undisputed succession goes a long way to explain Ricardo's power. Malthus himself was "almost staggered"⁸ by his authority; no small part of it was based on the fact that, so far as the public was concerned, he had no rival.

¹ Southey in his *Common Place Book* (ed. by J. W. Warter, 1849-51) had stored away arguments against 'Political Economy' of a kind that Malthus himself used. Vol. I, p. 174.

² W. Smart: *Economic Annals of the Nineteenth Century, 1801-1820*, 1910, Vol. II, p. 456. Hobbhouse "trusted that the House would not be led away by the abominable theories of the political economists". (A. Aspinall: *The Diary of Henry Hobbhouse (1820-1827)*, 1947, p. xi.)

³ Graham Wallas: *The Life of Francis Place*, revised ed., 1918, p. 373.

⁴ *Ibid.*, p. 166.

⁵ *Autobiographical Recollections of Geo. Pryme, Esq., M.A.*, ed. by his daughter, 1870, p. 286.

⁶ *Political Economy and the Philosophy of Government*, illustrated by extracts . . . from private journals and letters, tr. M. Moguet, 1847, p. 119.

⁷ *Edinburgh Review*, October 1819, p. 468.

⁸ *Principles of Political Economy*, L.S.E. Reprint, Introduction (1819), p. 18.

Other consequences followed on seclusion. Vested interests did not intrude themselves into the pundits' debate, largely because they did not know it was going on. Certainly they did not realise its significance. It is well to remember this when judging the possible motives of Ricardo and Malthus and the rest in formulating their theories. This was a factor which in these few crucial years probably weighed against Malthus. It seems likely that had the issue between them been made publicly explicit instead of being obscured by a specialists' argument, Malthus' case might have received the greater support of the two. It might well have rallied to itself the intellectual support of the landholders and the protected industrialists along with the tremendous body of opinion which after so many years of war was terrified of dependence on foreign food.

There were other reasons why the public and the politicians should ignore the debate. Adam Smith was the overriding authority, and there was a tendency to resent efforts at extending or altering his work. Malthus commented on the class of persons who "having made themselves masters of the question so far . . . do not look with a favourable eye on new and further inquiries".¹ This was written at a time when Ricardo had already gained wide acceptance. All the inertia Malthus had described he felt resisting him as he tried to recover the lost ground.

In most cases of fundamental debates, though one side or other may win, the protagonists continue the discussion, and the question is only finally closed by weight of opinion and the change of circumstances. The conditions of the 1820's pretty well put a closure on discussion. The thought of a century was to be conditioned by this debate which went on so largely behind closed doors, and the verdict of which was accepted by the public almost without inquiry.

It was with widely varying degrees of insight that the opponents of the New Political Economy realised that it was going to be revolutionary in the political sense. Some were not aware of it until too late; others scarcely at all. No effort was made to co-ordinate an opposition case which would be a match for the New School. Among the latter there were few doctrinal differences; in contrast, among the dissenters with their less solid logic, elliptical methods and lack of co-ordination, there was wide diversity of theory. They failed to perceive what was at stake; as a consequence they failed to create a rallying point.

To add to the difficulties, there was something of a dispersion among the dissentients. Ricardo, Mill and M'Culloch were always in close and intimate communication. But West went off to India as Chief Judge of the King's Court, to die within three years.² Sismondi was a Swiss, more concerned with the future of Europe than of England, and a dabbler in philosophy and history. Lauderdale was

¹ *Ibid.*, Book I, Ch. v, p. 7.

² F. D. Drewitt: *Bombay in the Days of Geo. IV: Memoirs of Edward West*, 1907, XVI.

too old to be partner to an attempt at co-ordination. Young was dead by 1821. And so on. Many of those who took up the cudgels against Ricardo scarcely made the acquaintance of others doing the same.

The advantages of the New School in terms of personalities did not end there. In Mill and M'Culloch Ricardo found two men who, though they appeared to have come along paths very different from his own, had arrived at a surprising similarity of outlook. Superficially it was a far cry from the Jewish stockbroker to two Scots publicists. But they were all three expatriates in England and not likely to be infected with traditionalist sentiment. The severe logic in which Mill delighted had produced in his mind a methodological approach very similar to that of Ricardo. The optimism that Ricardo had developed as a highly successful member of the business community had been instilled in Mill and M'Culloch by the lectures of Dugald Stewart at Edinburgh. Malthus' side of the debate probably had more thinking persons on whom to draw, among them some who were more than the equals of Ricardo's supporters. But no such accidents served to unite the underconsumptionists. Lauderdale was first and foremost a politician, and one of incredible stubbornness at that. So many of those who might have helped were engrossed in other things—Chalmers with his church, Rooke and Craig with their farms, Samuel Bailey with his philosophy. Malthus failed to see that a few vigorous, intransigent apostles outweighed any number of general supporters not infused with zeal.¹ But not only did they fail to unite against the New School, but the various underconsumptionists set about one another with such good effect that the view with which they all disagreed won the day. Malthus rebuked Lauderdale for the extreme nature of his views.² Sismondi was at variance with the rest for seeking to meet the deficiency by improving the purchasing power of the worker.³ Chalmers in economics as in church government was ploughing his lonely furrow, and so on. On one thing only could most of them agree—that the pace of industrialisation should be slowed down.

By a curious coincidence the two men who might have played M'Culloch to Malthus were, like himself, clergymen—Thomas Chalmers and Richard Jones. Chalmers, whose thinking had such striking affinity to that of Malthus on so many points, seems to have failed to perceive this, and always regarded himself as the creator of a system in his own right. He produced his own treatise, which differed from

¹ Speaking of the propositions of political economy, Malthus says "... in order to give them their proper weight and justify their being acted upon, it is extremely desirable, indeed almost necessary, that a considerable majority of those who ... are considered by the public as likely to be the most competent judges, should agree in the truth of them." (*Principles*, Intro., p. 3). Yet it was a *minority* that swept the public off its feet.

² *Ibid.*, p. 314n. "Lord Lauderdale appears to have gone as much too far in deprecating accumulation as some other writers in recommending it."

³ *Political Economy and the Philosophy of Government*, 1847, p. 120.

Malthus' view just enough to discredit them both.¹ Perhaps it was too much to expect that Chalmers—the greatest pulpit orator of his day, whose pronouncements on so many subjects had been heard with respect and applause, should content himself with putting another man's case.

Richard Jones, though political economy was the focal point of his life, and though he had a faith in his master well abreast of that of M'Culloch, was confronted with an insuperable obstacle. It was not possible to take up the Malthusian case, in M'Culloch's fashion, and pump it. Jones was confronted with the dual rôle of rounding off a system and publicising it. The task was too much for him. In his desperation he had even suggested to Whewell that Malthus should be sounded with a view to a concordat over certain definitions. Whewell with his robust good sense scoffed the proposition that Jones should so approach his "economical pastor and master".² For Jones there was less than the average man's measure of certainty, much less than M'Culloch's large share. Whewell, who was the great driving force behind Jones, knew what a paralysing effect Jones' attempt at the dual rôle was having on him. On one occasion it appeared as though Jones had come to a dead halt on the problem of method, fearing he himself was becoming a metaphysician. Whewell briskly pointed the path: "But never mind if other people call you so—being well assured that you and Malthus belong not to the *metaphysical* but to the *ethical* school of Political Economy."³ When M'Culloch assailed his book on Rent, a fine chance was offered to Jones to take the limelight, but he procrastinated, and the opportunity was lost. Yet Jones was not a complete failure at putting over his views. Whewell, in spite of his occasional impatience with Jones, took his political economy from him. Herschel⁴ and Sedgwick,⁵ two of Cambridge's brightest ornaments of the day, held a high opinion of him and his work. Though he lacked M'Culloch's readiness of composition (and repetition) and could never have been so unflinching a dogmatist, it seems clear that had only his case been further matured into a system by Malthus, and some of the burden of original thinking removed, he would have given M'Culloch a good run. But with Jones bogged down in the morass of data, with which purity of method insisted he should surround himself, renouncing the bull-dozer of deduction, and struggling to shift the fluid mass on the spreading prongs of the fork of induction, the next stage of propagation was almost out of the question. There could be no passing of the compact message from the disciples to the popularisers.

¹ *The Quarterly Review*, that had welcomed Malthus' articles earlier, described Chalmers as "one incompetent to reason on this subject", and referred to "a miserable sophism which lay at the bottom of his whole economic system". (Vols. XI, VIII, pp. 39, 69.)

² Isaac Todhunter: *William Whewell, An Account of his Writings, with selections from his ... correspondence*, 1876, Vol. II, p. 155.

³ *Ibid.*, Vol. II, p. 49.

⁴ *Life and Letters of Maria Edgeworth*, ed. A. J. C. Hare, 1894, Vol. II, p. 313. Todhunter, *Whewell*, Vol. I, p. xxi.

⁵ *Ibid.*, Vol. II, p. 117.

In a letter to Bentham, Mill had set forth the qualifications required in a disciple. "In the first place," he had written, was required a person who had "completely taken up the principles", and was "thoroughly of the same way of thinking" as the master. Then he put the "necessary previous discipline" which a disciple must undergo. Finally, the aspirant must be one "whose whole life will be devoted to the propagation of the system".¹ These were formidable requirements, but even they omitted one further that was essential—skill as a propagandist.

How did Mill himself measure up to these requirements? In a sense he was a failure. Ricardo had to be content to be no more than a part interest to Mill. After Ricardo's death the affairs of the East India Company, the University of London, and a host of other things crowded in on Mill to consume his time. Far from his "whole life" being "devoted to the propagation of the system", only a small portion of it was so dedicated. His own contribution, the *Elements of Political Economy*, was intended to be a "school-book of Political Economy", but as such was a failure. Though the *Elements* greatly improved on Ricardo's erratic exposition, it was completely lacking in popular appeal. Perhaps James Mill's greatest contribution came from the way he educated his son. The depth to which he had scored the Ricardian case into the mind of John Stuart Mill was such that it was never to be erased by all the chaffing of changing circumstances and new ideas. In 1823 Professor Townsend of Cambridge wrote² urgently to James Mill, entreating him that he might enter John's name at Trinity College. What might not have happened had the father acceded, and had young John run into the powerful mind of William Whewell, then a rising light in the College of which he was to become Master and warmly backing his friend Jones against the New Political Economy!

It appeared for a short time around 1819 as though a neophyte had been found to extend the narrow circle of Ricardian propagators. Thomas De Quincey has left a vivid record of the two dreadful years, 1817 to 1819,³ as the time of his most complete prostration. Then occurred an incident which gives political economy a claim in a field in which its powers have not been highly rated—that of therapeutics. The banisher of his opium visions was that unlikely regimen—Ricardo's *Principles of Political Economy*. But though the *Principles* had rescued him once from the shades, it could not cause him to remake his life. Yet there was a positive side to his contribution. By the nature of his approach, regarding as he did the Ricardian performance not as a social message but as a manifestation of the infinite miracle of the human intellect, he constituted an outpost for the New School among the highbrows. He took up the cudgels

¹ Bain: *James Mill*, p. 137.

² *Ibid.*, p. 205.

³ *Confessions of an English Opium Eater* (*Collected Writings*, ed. Masson, 1897), Vol. III, p. 431.

against Coleridge, a man whom Ricardo could not successfully attack. He continued throughout his life to pester editors to publish articles on political economy, and so was able to reach a stratum of society largely inaccessible to M'Culloch with his forthright statements with their clear bearing on policy.

Just as Torrens failed in the House of Commons to build on the foundations Ricardo had laid, so he failed as a disciple. His was the failure that arises from the inability on the one hand to found a school of his own, and on the other to devote himself wholly to someone else's system. His intellect was too strong to let him become a disciple, but not strong enough to make him a master. No doubt his contributions both to ideas and their dissemination were valuable, but he lacked completely that singleness of purpose which was M'Culloch's chief characteristic and which gives him a unique position in the history of economic thought.

By timing so fortuitous as to be almost miraculous, M'Culloch came on the scene at exactly the right time to make him the prince of propagators. A little earlier, and he might have fixed his mind on some particular idea as others had done, a little later and his advocacy would have been weakened by the mounting number of objections. Ricardo's early death had two contrary effects. It deprived him of the opportunity of gathering round himself a body of devoted followers, but it gave him one follower who was without a peer, and whose strength was as the strength of ten. It is clear that Ricardo himself was departing from the earlier dogmatism of the *Principles* in the last year or so of his life. M'Culloch refused to accept Ricardo's modified views as contained in the chapter on "Machinery" included in the third edition of 1821,¹ though he never stated his objections publicly. But though M'Culloch was made for a brief period to "tremble for the Ark of his Covenant",² death supervened before real difficulty was created by the evolution of his master's mind. Had it been otherwise, bewilderment and confusion might have replaced the missionary zeal with which M'Culloch attacked his generation. As it was, M'Culloch could hail the *Principles* as "one harmonious, consistent and beautiful system",³ a vision he was to retain untarnished until his death.

M'Culloch measured up in magnificent fashion to Mill's standards, and added one of his own—he was an excellent subject for caricature. Political Economy was much more frequently lampooned as a Scots creation than a Jewish one, though composite adjectives like Hebraic-Caledonian were used. It was Cobbett with his talk of Adam Smith and his "old Scottish doctrines"⁴ that started it. But it was M'Culloch that gave it body. Cobbett himself lampooned him as

¹ *Letters of Ricardo to Malibus*, ed. Bonar, p. 184.

² *Ibid.*, p. xvii.

³ *Edinburgh Review*, June 1818, p. 87.

⁴ *Letters of David Ricardo to Hutches Trower, and others, 1811-1823*, ed. James Bonar and J. H. Hollander, p. 202n.

Peter,¹ John Wilson chased him as the Stot,² Peacock called him MacFungus³ and MacQuedy,⁴ Carlyle labelled him M'Croudy.⁵ M'Culloch's enormous physical strength, his broad burr, and his addiction to Scots whisky invited sallies, and friend and foe alike took advantage of them. Even the inner Benthamite circle, popularly thought to be so morose, delighted in mimicking him.⁶ In short, he was a personality. There was no ignoring the burring, booming M'Culloch.

For a man who played so large a part in 'making' a science, he was the most unscientific of men. The open-mindedness which is essential to the scientific approach was foreign to him. When James Mill was protesting about John Wilson's elevation to the Chair of Dugald Stewart, he condemned Wilson in terms which were eminently applicable to M'Culloch. "The unfortunate youth will hear from the man in question nothing but exhortations to the implicit adoption of opinions already received."⁷ No more telling charge could have been made against M'Culloch, with his literal assertions of Ricardian finality. He had none of the sense of flux and change without which no scientist is worthy of the name. In fact, so final did the system he preached seem to him that he expressed the desire to return to earth after the passage of three hundred years to note the effects of his master's political economy.⁸

It is sometimes forgotten that when Carlyle wrote of the "dismal science", his comment was a double one. He spoke of "the dreary professors of a dismal science". M'Culloch was the prototype of the dreary professor. But Carlyle was not blind to M'Culloch's virtues. We find him making a note in his Journal in 1834: "See M'Culloch and speak with him." Promise to see him again. A hempen man, but *genuine* hemp."⁹ Carlyle's acuteness showed him something of the other side of M'Culloch's character, and he saw that sincerity was the counterpart of simplicity.

M'Culloch's balance sheet has weighty items on both sides. To his credit he made political economy a popular science, a matter of general concern. When he came upon Ricardo's ideas in the *Principles* of 1817, they were little more than the beliefs of a narrow circle.

¹ Smart: *Econ. Annals of the Nineteenth Century*, Vol. II, p. 270.

² *Blackwood's Magazine*, April, 1830, p. 351.

³ *Paper Money Lyrics*, in *Works*, ed. H. Cole, 1875, Vol. III, p. 224: "His economic science Wad silence a' your clanking"

⁴ *Crochet Castle (1831) Works*, Vol. II, p. 243: "Mr. MacQuedy and the Reverend Doctor Foliott had many digladiations on political economy...."

⁵ *Laurer Day Pamphlets*, "The New Downing Street", Centenary Edition, Vol. XX, 1898, p. 141 *et seq.*

⁶ Bain: *James Mill*, p. 183.

⁷ *Selections from the Correspondence of . . . Macvey Napier, Esq.* Edited by his son, Macvey Napier, 1879, p. 43.

⁸ Cockburn, H.: *Life of Lord Jeffrey, with a selection from his correspondence*, 1852, Vol. II, p. 377n.

⁹ J. A. Froude: *Thomas Carlyle, A History of the First Forty Years of his Life, 1795-1835*, 1882, Vol. II, p. 467.

By the mid-century they had pervaded the nation. He played no small part in making political economy a subject of concern to educationalists; even the ancient universities could not wholly ignore the new discipline that was being studied and discussed in business circles, among politicians, clergymen, and intellectuals generally. On the debit side, the hedonist reputation the new science earned was to no small degree his responsibility, and when the social conscience of England had recovered its breath after his whirlwind propaganda, the reaction was inevitable. By taking a short cut he had arrived earlier at the goal of almost universal acceptance for the New Political Economy than he would have done by more fastidious methods and a lesser element of dogmatism. By changing the time sequence, he changed other things. The New Political Economy had gained quick acceptance long before any rival system could do so; as a result it occupied a whole field not properly belonging to it, for a lengthy and significant period. But the revulsion, when it came, was proportionate in speed and strength to the acceptance. The student of economic thought may safely treat M'Culloch as a lightweight, but the student of economic opinion must find in him a key personality. Whoever may struggle for the crown of leading economic thinker in Great Britain in the first half of the nineteenth century, there can be no dispute as to who was the leading disseminator.

The skill with which the New School presented its case, though it scarcely did justice to its opponents, cannot but command our admiration. The advantage of speed and surprise was pressed home. Malthus was well within his rights in complaining¹ about the appearance of the New Political Economy in the *Encyclopædia* while he, and most who felt as he did, were scarcely more than warmed to the discussion. While all manner of people were developing their refutations and publishing them in leisurely fashion, the completed system of the New School was being boosted in responsible circles as though it was final. M'Culloch is probably responsible for the annihilation of more constructive economic thinking than any other political economist. For though the graves of some of the victims of the mental closure which he brought about have been discovered by research,² it has never been possible to make them live again. The active rôle they might have played in forming policy was completely forestalled by the speed with which the New Political Economy was erected into an orthodoxy. They succeeded in making the appearance of victory precede the reality and so hastened its coming.

The dissenters did not abandon the fight—in fact some of them did their best fighting after the day was lost. This was certainly true of Malthus and Jones. But they were no longer engaged in

¹ *Correspondence of Macvey Napier*, p. 31.

² E. Seligman, "Some Neglected British Economists", *Economic Journal*, 1903, reprinted in *Essays in Economics*, 1925.

open warfare—after 1821 they were attacking an entrenched position, the defences of which were being continuously improved, and which were being manned by an ever growing number of recruits.

James Mills, who spent no small part of his life in polemics, knew the best face to put on his case. He compensated for his failings as a disciple by his wisdom as an adviser on tactics. Ricardo was prepared to go into his third edition in the same spirit in which he had published the first two—making a further contribution to discussion, in which he was prepared to meet objections to his theory. He proposed to publish a whole series of Notes on Malthus' case in an Appendix. Mill, whose sense of how to transform ideas into beliefs was so much stronger, advised otherwise. For Mill, the time for dogmatisation came earlier than for most men. By 1821 he thought it high time to drop the attitude of the searcher for truth, and to state the case more flatly. Mill advised, as Ricardo reported, "by all means to avoid giving too controversial a character to my book". He went further. "Indeed, he advises me not to notice any of the attacks which have been made upon me, in my third edition."¹ Malthus, on the other hand, was proffered no such advice, and continued to incorporate in his work the opposing case. The result, as Mill foresaw, was to give Ricardo's work an air of positiveness which that of Malthus wholly lacked.²

Excellent tacticians as they were, the supporters of the New Political Economy hastened to consolidate their advantage. They founded the Political Economy Club in 1821. James Mill drafted the Rules. First came a pledge to missionary zeal: "The Members of this Society will regard their mutual instruction, and diffusion amongst others of first principles of Political Economy, as a real and important obligation."³ Membership was not to be on the basis of mere passive assent—active propagation was involved. The second article invested members of the Club with the responsibility of watching the Press and keeping it to "sound views". The Club then, was intended to be a *corps d'élite* of propagandists. Where was the opposing case in all this? Malthus became a member of the Club. He had a pretty thin time of it, being mercilessly slated by Mill and the rest. Perhaps no better evidence could be found of Malthus' lack of appreciation of what was at stake than his participation in the proceedings of the Political Economy Club. It had originated as an engine for the spreading of views different from his own, and continued to be. Had he been less of thinker, or had he possessed an adviser like Mill, he might well have launched a rival club, rallying the considerable number of men whose views approximated to his own.

¹ *Letters of David Ricardo to Hutches Trower and others*, p. 141.

² Malthus well knew who had supplied the driving force. "I am fully aware of the merits of Mr. McCulloch and Mr. Mill, and have a great respect for them both, but . . ." (*Correspondence of Maccov Napier*, p. 3.)

³ Bain: *James Mill*, p. 198.

The founders of the Political Economy Club were sensible enough not to allow it to gain the reputation of being dominated by a single body of ideas—in fact the apparent diversity of opinion went so far as to cause Maria Edgeworth to report in her diary in 1822 that “a gentleman answered very well the other day when asked if he would be of the famous Political Economy Club, that he would, whenever he could find two members of it that agree on any one point”.¹ Ricardo wrote to Say just after the formation of the Club: “We have recently formed a club of political economists, in which we are proud to include Messrs. Torrens, Malthus and Mill”.² Here Malthus is listed as a fellow-crusader, hardly a true reflection of the position. It is a curious fact that neither Ricardo nor Malthus seem to have appreciated that the formation of the Political Economy Club was, in the broad sense, a political act.

As Malthus himself knew, it is often more important and more productive of lasting effects to condition minds than to instil in them particular ideas. By adopting a particular form of thought, especially of Ricardo's kind, it became almost impossible to appreciate the kind of case which men like Malthus would produce. Just as the ‘scientific’ approach has done more harm to the cause of formal religion by changing the method of men's thinking than by assailing particular beliefs, so Ricardo and the New Political Economy managed to induce a change in general methods of thought on economic matters of most far-reaching effect. Though not in itself guaranteeing the complete inviolability of the Ricardian view, the change of method made it desperately difficult to rediscover the paths which Malthus, Adam Smith and the earlier political economists had followed. As was the case with general theory, the dissenters to the New Political Economy varied more in their methods than did its supporters. Jones and Chalmers relied on the descriptive method; the latter was commended by John Stuart Mill for so doing.³ Spence was so much concerned with data as to have very little theory. These dissenters would have endorsed J. B. Say's views of Ricardian methods. Sismondi recounts with no little satisfaction a conversation with Say: “I had this morning a visit from Say, who said to me that his friendship for M. Ricardo and his school has very often cramped him, and that in truth he finds that they have injured the science by the abstractions into which they have thrown it, and that he shall be obliged in the new edition he is preparing absolutely to oppose them”.⁴ But there were many, like Samuel Bailey, John Craig, and Thomas Smith, among the opponents of the New School, whose writings were as deductive as Ricardo's.

The prime object of Ricardo was to establish a universal theory, yielding absolute conclusions. This attempt was clearly of great

¹ *Life and Letters of Maria Edgeworth*, Vol. I, p. 65.

² *Letters of Ricardo to Malibus*, p. 182.

³ *Principles of Political Economy*, Ashley's ed., p. 75.

⁴ *Political Economy and the Philosophy of Government*, 1847, p. 446.

potential political importance. A theory of this kind, or anything approaching it, would become a most powerful sanction for policies. But such a theory cannot be based on facts. They are too numerous, too difficult to establish, too difficult to select. The only alternative is a metaphysical starting-point. Bailey, composing his Dissertation on Value, might well be passed over as a mere spinner of refinements. But in trying to undermine the Ricardian theory of value, he was trying to deprive it of its absolute. Men like Bailey were trying but failed to discharge the rôle of metaphysician in political economy which Chalmers had described. "Had the province of common sense never been invaded by the subtleties of scholastic argument," Chalmers wrote in one of his articles on the Poor Law, "there might have been no use for the science of metaphysics. But when an acute metaphysician appears to darken the suggestions of this universal and infallible guide, he must be fought with his own weapon, and another metaphysician must arise to meet and overmatch him . . . just to restore common sense to all its prerogatives".¹ Had Bailey and the rest succeeded in this, the all-conquering dogmatism of Mill and M'Culloch would have been impossible.

The article "Political Economy" in the *Encyclopædia* was the sign that the partial vacuum of economic ideas had been filled—the New Political Economy had arrived. The Wealth of Nations was no longer the last word. But in a very real sense the New Political Economy was, and its votaries were prepared to keep it in that position by mercilessly destroying any infant system that should appear. The coming man who wanted to make a name for himself must start from Ricardo, and steer clear of what now became the heresies—those views which had no place in the shining temple of the New Political Economy. The bogey of gluts had been thrown on the scrapheap along with the trammels and crutches of mercantilism. The whole thing had been done so quickly that few realised what had happened. The large number of political economists who thought the New School unsound, outnumbering as they did those who accepted it, failed to co-ordinate themselves and went down before the energy and incisiveness of the few. A wholesale change of method had put discussion on an altogether different plane, which made attacks well-nigh impossible until new weapons were found. Speed, positiveness and skill, and no small measure of good fortune at the level of personal propagation contributed to the victory of the contingent and the unforeseen.

¹ *Edinburgh Review*, Feb., 1818, p. 278.

The Distribution of Earned and Investment Incomes in the United Kingdom

By E. C. RHODES

THOSE who are interested in the distribution of incomes will have found certain new facts, disclosed in recent reports of the Commissioners of Inland Revenue, of great interest. In Cmd. 7067 (March 1947), the sur-tax incomes for 1944-45 are classified by reference to proportions of earned income for different grades of total income. A similar table appears in Cmd. 7362 (March 1948). In this latter report Table 49 relates to sur-tax incomes for 1946-47 and is entitled "An analysis of Sur-tax cases by reference to proportion of earned income to total income in various ranges of total income". The table shows percentages of numbers in the various ranges of total income, where the ratio of earned to total income lies in grades from 0 to 10 per cent., 10 to 20 per cent., and so on up to 90-100 per cent. Thus, we see that 34.7 per cent. of the incomes between £2,000 and £2,500 are in the grade where the ratio of earned income to total income is 90 to 100 per cent., while 13.0 per cent. of incomes of £20,000 and over are in this grade, where the greater part of the income is earned. On the other hand 23.2 per cent. of the incomes between £2,000 and £2,500 are in the grade where the ratio of earned to total income is 0 to 10 per cent., while 46.9 per cent. of the higher incomes of £20,000 and over are in this grade, where the greater part of the income is due to investment. A footnote emphasises the preliminary character of this table, as it was based on assessments made up to 31 December, 1947, and the figures will be subject to revision when the work of assessment is complete. These two tables, that in the report made in 1947 and the later one made in 1948, are similar in character and it was thought worth while to attempt to arrive at certain tentative conclusions relative to the distribution of earned and investment incomes, where the total income comes in the sur-tax class.

Theoretically, it should be possible to construct a table showing the distribution of sur-tax incomes according to earned income and total income, and another table showing the combined distribution according to investment income and total income. We are given, in the reports of the Commissioners of Inland Revenue, the distribution of sur-tax incomes annually, and we should be able to apply the proportions, in the tables first mentioned, to the distribution of incomes, in order to construct the new tables. We can only do this with some trepidation, because what we would like to show is the distribution of incomes in a given year, classified according to earned income and total income

(say), but the data at our disposal are not complete, owing to the long period allowed for assessments to sur-tax. In the latest report (Cmd. 7362) we are given a table (48) in which (*inter alia*) is shown the distribution of sur-tax incomes for 1945-46, based on assessments made at 30 September, 1947. In further reports to be published in 1949 and subsequent years these figures will show revisions. The following details will indicate the kind of revisions which have been made in the past.

1941-42 CLASSIFICATION OF INCOMES

| Income | Assessments made | | Percentage Change |
|-------------|-------------------|-------------------|-------------------|
| | at 30 Sept., 1943 | at 30 Sept., 1947 | |
| £ 2,000— .. | 29,673 .. | 32,442 .. | + 9.3 |
| 2,500— .. | 18,704 .. | 19,791 .. | + 5.8 |
| 3,000— .. | 20,963 .. | 21,690 .. | + 3.5 |
| 4,000— .. | 11,131 .. | 11,491 .. | + 3.2 |
| 5,000— .. | 6,637 .. | 6,841 .. | + 3.1 |
| 6,000— .. | 4,374 .. | 4,481 .. | + 2.4 |
| 7,000— .. | 3,019 .. | 3,078 .. | + 2.0 |
| 8,000— .. | 3,778 .. | 3,860 .. | + 2.2 |
| 10,000— .. | 4,048 .. | 4,175 .. | + 2.1 |
| 15,000— .. | 1,516 .. | 1,507 .. | - 0.6 |
| 20,000— .. | 675 .. | 704 .. | + 4.3 |
| 25,000— .. | 338 .. | 346 .. | + 2.4 |
| 30,000— .. | 343 .. | 336 .. | - 2.0 |
| 40,000— .. | 182 .. | 190 .. | + 4.4 |
| 50,000— .. | 174 .. | 171 .. | - 1.7 |
| 75,000— .. | 58 .. | 51 .. | - 12.1 |
| 100,000— .. | 67 .. | 77 .. | + 14.9 |
| | 105,680 | 111,231 | |

With the passage of time we come to a more accurate statement of the distribution of incomes from the later assessments. In the four years from 1943 to 1947 the distribution for 1941-42 has changed materially, in particular in the two lower ranges from £2,000 to £2,500 and £2,500 to £3,000, relatively to the others. With the extremely large incomes sometimes the numbers diminish, where the majority increase.

Consequently, if we use as our basis of computations the distribution given in Cmd. 7362 for 1945-46, we must remember that we are using a preliminary estimate, which does not pretend to be an accurate representation of the facts for that period, particularly in the two lower ranges of income.

Tables I and II show the estimated distribution of sur-tax incomes, Table I with earned incomes more than £2,000 against total incomes, and Table II with investment incomes more than £2,000 against total incomes. In the original table 48 of Cmd. 7362 the total number of incomes is given as 136,365 with an aggregate income of £607 mn. We estimate that there are 69,805 incomes, aggregating £339,926,000 of which £251,650,000 is earned income, where the earned income is more than £2,000, and 52,454 incomes, aggregating £319,667,000, of which £250,934,000 is investment income, where the investment

TABLE II. SUR-TAX 1945-46. DISTRIBUTION OF TOTAL INCOME FOR GIVEN RANGES OF INVESTMENT INCOME.

| Total Income (£000) | Investment Income (£000) | | | | |
|------------------------|--------------------------|---------|---------|--------|--------|
| | All (2 and over) | 2-2.5 | 2.5-3 | 3-4 | I |
| | Number | Number | Number | Number | |
| All | 52,454 | 319,667 | 250,934 | 10,135 | 45,767 |
| 2-2.5 | 8,909 | 19,618 | 18,940 | — | — |
| 2.5-3 | 7,218 | 10,543 | 18,271 | — | — |
| 3-4 | 9,527 | 32,453 | 28,572 | 6,418 | 21,789 |
| 4-5 | 6,650 | 29,404 | 23,852 | 1,442 | 6,402 |
| 5-6 | 4,660 | 25,310 | 19,666 | 933 | 5,076 |
| 6-8 | 5,779 | 30,262 | 29,680 | 723 | 4,935 |
| 8-10 | 3,111 | 27,473 | 20,176 | 288 | 2,551 |
| 10-12 | 1,865 | 20,230 | 14,626 | 133 | 1,448 |
| 12-15 | 1,761 | 23,224 | 16,798 | 95 | 1,262 |
| 15-20 | 1,393 | 23,240 | 16,974 | 60 | 1,022 |
| 20 and over | 1,581 | 59,910 | 43,379 | 43 | 1,282 |
| | | | | | 150 |
| All | 5,693 | 32,383 | 24,780 | 2,071 | 21,808 |
| 4-5 | 3,360 | 14,814 | 14,237 | — | — |
| 5-6 | 877 | 4,776 | 3,980 | — | — |
| 6-8 | 880 | 5,980 | 3,971 | — | — |
| 8-10 | 266 | 2,357 | 1,201 | 1,236 | 10,894 |
| 10-12 | 131 | 1,425 | 587 | 447 | 4,846 |
| 12-15 | 87 | 1,155 | 390 | 247 | 3,259 |
| 15-20 | 61 | 1,033 | 275 | 97 | 1,640 |
| 20 and over | 31 | 843 | 139 | 44 | 1,169 |
| | | | | | 402 |
| All | 1,070 | 10-12 | 13,539 | 1,202 | 50,000 |
| 10-12 | 634 | 6,859 | 6,627 | — | — |
| 12-15 | 279 | 3,684 | 3,066 | — | — |
| 15-20 | 115 | 1,935 | 1,278 | — | — |
| 20 and over | 42 | 1,061 | 451 | 1,202 | 50,000 |
| | | | | | 39,823 |

I = Amount of investment income (£000).

T = Amount of total income (£000).

income is more than £2,000. The 66,560 incomes which are not shown in Table I are those where the earned income is less than £2,000, and the 83,911 incomes excluded from Table II are those where the investment income is less than £2,000.

A particularly interesting feature of Tables I and II is the information which is supplied on the change in investment income with changes in earned income and vice-versa. From the totals of the various columns in Table I we get:—

AVERAGE TOTAL INCOME AND AVERAGE INVESTMENT INCOME FOR DIFFERENT EARNED INCOMES (from Table I).

| | <i>Earned Income (£000)</i> | | | | | | | | | |
|------------------------------|-----------------------------|-------|-------|-------|-------|-------|--------|--------|--------|--------|
| | 2-2.5 | 2.5-3 | 3-4 | 4-5 | 5-6 | 6-8 | 8-10 | 10-12 | 12-15 | 15-20 |
| Earned income (average) .. | 2.189 | 2.681 | 3.341 | 4.386 | 5.400 | 6.734 | 8.696 | 10.767 | 13.085 | 16.567 |
| Average total income .. | 3.026 | 3.806 | 4.656 | 5.863 | 7.319 | 9.187 | 11.373 | 13.703 | 15.921 | 19.283 |
| Average investment income .. | 0.837 | 1.125 | 1.315 | 1.477 | 1.919 | 2.453 | 2.677 | 2.934 | 2.836 | 2.716 |

In this table we omit the final grade of £20,000 or more earned income. We see that the 25,410 incomes, where the earned income is between £2,000 and £2,500, have an average total income of £3,026, so the average investment income of this group is £837, the earned income average being £2,189. As we proceed from one grade of earned income to the next, the average investment income rises, but when we get to the highest ranges of earned income the average investment income declines. These changes are shown in Diagram I together with a smooth curve which reasonably describes them.

Similar computations from Table II give these results:—

AVERAGE TOTAL INCOME AND AVERAGE EARNED INCOME FOR DIFFERENT INVESTMENT INCOMES (from Table II).

| | <i>Investment Income (£000)</i> | | | | | | | | | |
|--------------------------------|---------------------------------|-------|-------|-------|-------|-------|--------|--------|--------|--------|
| | 2-2.5 | 2.5-3 | 3-4 | 4-5 | 5-6 | 6-8 | 8-10 | 10-12 | 12-15 | 15-20 |
| Investment income (average) .. | 2.179 | 2.667 | 3.353 | 4.352 | 5.336 | 6.701 | 8.694 | 10.675 | 12.932 | 16.391 |
| Average total income .. | 3.041 | 3.660 | 4.516 | 5.688 | 6.739 | 8.059 | 10.530 | 12.653 | 14.254 | 17.422 |
| Average earned income .. | 0.862 | 0.993 | 1.163 | 1.336 | 1.403 | 1.358 | 1.836 | 1.978 | 1.322 | 1.031 |

Here the 14,773 incomes where the investment income is between £2,000 and £2,500 (with an average of £2,179), have an average total income of £3,041, so the average earned income is £862. Again, as we proceed from one grade of investment income to the next we find the average earned income rising until we get to the highest ranges, when this average diminishes. Diagram II shows these changes together with a smooth curve.

It is apparent that Tables I and II show that there is some correlation between earned and investment incomes. The diagrams suggest that this correlation is not linear. We must consider the possibility that this relationship emerges from our data on account of the incompleteness to which we have already referred. On reflection, it appears that Tables I and II, in their final form, which is only possible in a few years time, would be altered by the inclusion of relatively more frequencies in the lower income grades, particularly in the grades £2,000 to £2,500 and £2,500 to £3,000. This would have the effect of introducing into our curves in the diagrams more curvature than is apparent at present.

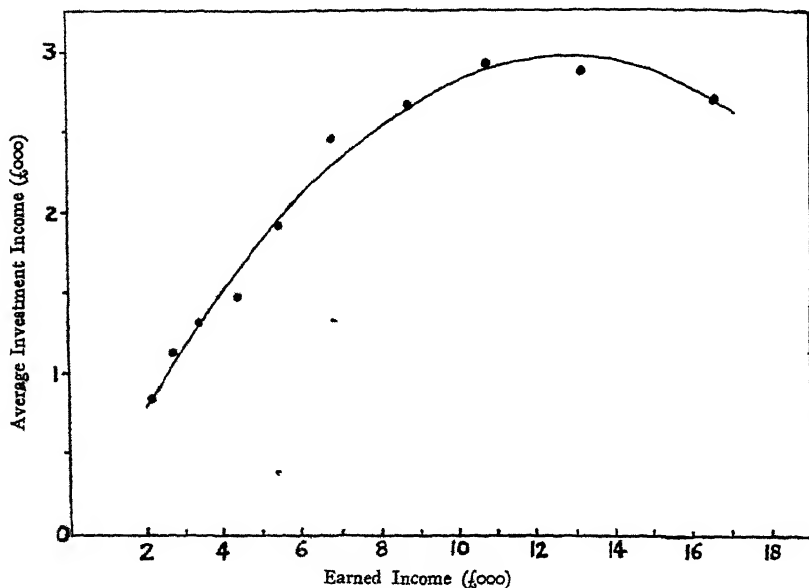


DIAGRAM I

Average investment incomes for given earned incomes.

So, it would seem that, if anything, our diagrams err on the side of understatement rather than the reverse.

The curves in Diagrams I and II both have maximum points. The question arises whether these maxima are introduced on account of the method of computing the amounts of income in the various grades in Tables I and II. We feel some confidence in the amounts specified for these grades, where both limits are known, and less confidence in the amounts for the grades £20,000 and over, owing to the lack of real knowledge of the distribution in these very high income ranges. When we compute the averages for the higher grades of income, these more doubtful figures acquire increasing importance, and location of the points on the diagrams corresponding to the high incomes is subject to greater error than the location of the points corresponding to the

lower incomes. It would be better to suspend judgment on this point until more accurate data are available.

If we accept the graphs as representative of the nature of the joint possession of earned and investment incomes, it appears that earned incomes are accompanied by investment incomes, which on the average increase with increasing earned incomes, but at a diminishing rate. An earned income of £2,000 has an investment income with it, of about £800 on the average, an earned income of £6,000 has an investment income of about £2,100 on the average, and an earned income of £10,000 has an investment income of about £2,850 on the average. The £13,000 earned income is accompanied by an average investment

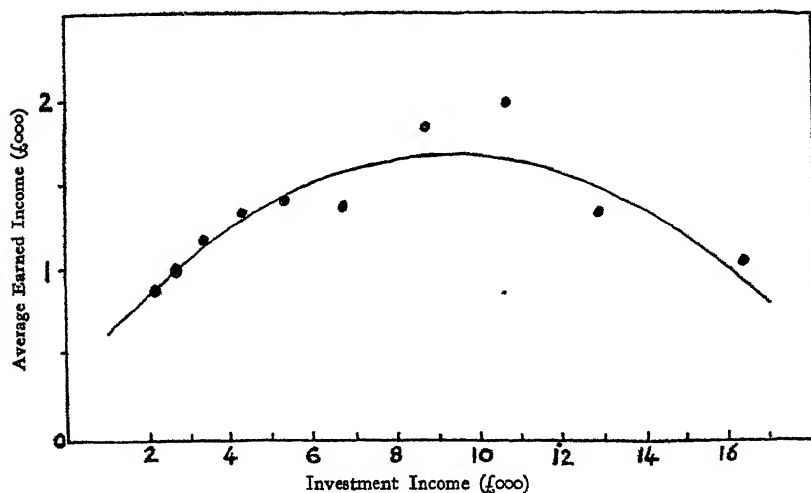


DIAGRAM 2

Average earned incomes for given investment incomes.

income of nearly £3,000. For higher earned incomes the average investment income is less than this.

Diagram II shows similar changes in average earned income for a given investment income. An investment income of £2,000 has with it an earned income of about £850 on the average, an investment income of £6,000 is accompanied by an earned income, on the average, of about £1,500. The maximum average earned income of £1,650 accompanies an investment income of £9,000. For higher investment incomes, the average earned income is less than £1,650.

When we examine the distributions of income shown in Tables I and II, first for a given earned income, and next for a given investment income, we note some interesting differences. Table I shows us the distribution of total income for various grades of earned income; thus we can examine in these data the distributions, for practical purposes, of investment incomes for given earned incomes. These

distributions are not Pareto distributions. We can fit a succession of Pareto curves to the data in the various grades and estimate the Pareto coefficient α appropriate to these grades, the Pareto curve being defined in the usual manner by the equation $y=Cx^{-\alpha-1}$, where x is the income and C is another constant. Similarly Table II effectively indicates the distribution of earned incomes for given investment incomes. The results of the computations of the various α 's are set out in Table III. The α 's have been computed for more data than have been shown in Tables I and II, the grades of earned income and investment income having been extended below £2,000. As we stated above, the distributions are not exactly of the Pareto type. If they were the values of α in the various columns of Table III would be the same. We may indicate briefly a few cases:—For earned incomes under £250, the distribution of total incomes is such that α varies between 1.97 for the grade £2,000 to £2,500 and 3.08 for the grade £15,000 to £20,000. For the next group of earned incomes, between £250 and £500, α varies between 0.73 and 3.23. For earned incomes between £2,000 and £2,500 the range of α is from 4.47 to 1.60. No Pareto curves would adequately describe these distributions of total income, whether earned incomes or investment incomes are given.

There is a striking difference between the two parts of Table III. When they are compared, we see that for the greater part, the values of α in the lower half of the table (for given investment incomes) are greater than those in the upper half of the table (for given earned incomes). Now a larger α in the Pareto curve indicates a distribution of greater skewness, or, as it is usually said, a distribution of greater inequality. So the distributions of earned income for given investment incomes are more skew than the corresponding distributions of investment income for given earned incomes. In effect, this means that there is more inequality in incomes on account of the greater inequality in the distribution of earned incomes than on account of the lesser inequality in the distribution of investment incomes. Perhaps it is needful to emphasise that we are dealing here with sur-tax incomes. This proposition may or may not be true generally.

Looking at the upper part of Table III where we see, in effect, the α 's for the distribution of investment income for given earned incomes, we note that for the small earned income groups the α 's increase with increasing investment income. There is greater inequality in the distribution of investment incomes amongst the very rich than amongst the moderately rich for these grades of earned income. On the other hand, for the grades of earned income £1,500—£2,000, £2,000—£2,500, £2,500—£3,000, £3,000—£4,000, the α 's decline with increasing investment income. For these classes of earned incomes there is greater inequality in the lower ranges of investment income than in the upper.

The lower part of Table III gives us some idea of the distribution of earned incomes for different grades of investment income. For investment incomes up to about £2,000 there seems to be greater

inequality in the distribution of larger earned incomes than of smaller earned incomes.

It is impossible, from this table, to get a realistic pattern of changes in earned income for given investment income or changes in investment income for given earned income. We need a table showing frequencies with earned income in grades and investment income in grades. Table III merely gives us certain broad indications already mentioned, and it is not easy to make exact comparisons. Where the earned income lies between £2,000 and £2,500 and the total income lies between the same limits, we know that the investment income may lie between £0 and £500. Similarly for earned incomes between £3,000 and £4,000 and total incomes between £4,000 and £5,000. The possible range of investment incomes is between £0 and £2,000. Thus the values of α in the upper part of Table III refer to overlapping parts of the range of investment incomes.

It is of interest, at the present time, to estimate the contributions to the special levy on investment incomes introduced in the Budget of 1948, from various classes of income. We must first present a more extensive table than Table II, where investment incomes less than £2,000 are shown. Our Table IV gives the estimated distribution of incomes, the total incomes being shown in fewer classes than formerly.

The total income shown in this table, £601,885,000, differs from the total given in Table 48 of Cmd. 7362, which formed one of the bases of the work. The total there given is £607,099,000. In the course of the work, estimates were made of the income belonging to the various numbers in the grades. It is felt to be reasonably satisfactory that the final figure only differs by about 1 per cent. from the original; this difference is accounted for by the nature of the approximations made. We note that approximately 50 per cent. of the total income is due to investment.

If we assume that this table represents the facts of the distribution of income in 1945-6 reasonably well we can apply to it the mechanism of computing the special levy. The method of computing the levy may be expressed thus by means of formulæ.

| <i>Investment income (X)</i> | <i>Levy</i> |
|------------------------------|---------------|
| Under £250 | Nil |
| £250-£500 | $0.1X - £25$ |
| £500-£1,000 | $0.2X - £75$ |
| £1,000-£2,000 | $0.3X - £175$ |
| £2,000-£5,000 | $0.4X - £375$ |
| £5,000 and over | $0.5X - £875$ |

Thus on an investment income of £1,000 the levy is £200 - £75 = £125 or £300 - £175 = £125. On an investment income of £4,000 the levy is £1,600 - 375 = £1,225.

TABLE IV.
SUR-TAX 1945-46. DISTRIBUTION OF INCOMES DISTINGUISHING INVESTMENT INCOMES AND TOTAL INCOMES.

| Total Income (£000) | | Investment Income (£000) | | | | | | | | 20 and over | All |
|---------------------|-----|--------------------------|--------|--------|---------|------|--|--|--|-------------|-----|
| Under 1 | 1-1 | 1-1 | 1-2 | 2-5 | 5-8 | 8-20 | | | | | |
| 2-5 Number | .. | 14,235 | 14,150 | 16,593 | 32,304 | | | | | 107,478 | |
| | T. | 41,364 | 41,847 | 50,078 | 101,018 | | | | | 316,516 | |
| 5-8 Number | I | 5,256 | 10,419 | 24,213 | 89,635 | | | | | 133,242 | |
| | T | 1,131 | 1,718 | 2,193 | 5,132 | | | | | 16,834 | |
| 8-20 Number | I | 6,833 | 10,442 | 13,448 | 31,208 | | | | | 103,418 | |
| | T | 420 | 1,270 | 3,457 | 18,092 | | | | | 54,462 | |
| 20 and over Number | I | 348 | 588 | 867 | 1,731 | | | | | 10,333 | |
| | T | 3,672 | 6,282 | 9,597 | 18,963 | | | | | 118,014 | |
| All Number | I | 130 | 439 | 1,270 | 5,989 | | | | | 70,463 | |
| | T | 17 | 38 | 63 | 126 | | | | | 1,720 | |
| 20 and over | I | 478 | 1,114 | 1,836 | 3,695 | | | | | 63,937 | |
| | T | 6 | 28 | 96 | 417 | | | | | 43,512 | |
| All Number | I | 15,731 | 16,494 | 19,716 | 39,293 | | | | | 136,365 | |
| | T | 52,347 | 59,685 | 74,959 | 154,884 | | | | | 601,885 | |
| All | I | 5,812 | 12,156 | 28,836 | 114,133 | | | | | 301,679 | |
| | T | | | | | | | | | | |

I = Amount of investment income (£000).

T = Amount of total income (£000).

The levies for the various grades of income shown in Table IV are given in Table V.

TABLE V.

SUR-TAX 1945-46. INCOMES DISTINGUISHING INVESTMENT AND TOTAL INCOMES. AMOUNT OF LEVY (£000).

| Total Income (£000) | Investment Income (£000) | | | | | | | all |
|------------------------|--------------------------|---------|---------|----------|----------|----------|-----------|----------|
| | £-½ | ½-1 | 1-2 | 2-5 | 5-8 | 8-20 | 20 & over | |
| 2-5 .. | 169.7 | 1,022.6 | 4,360.1 | 23,740.0 | | | | 29,292.4 |
| 5-8 .. | 13.7 | 125.2 | 593.3 | 5,312.3 | 10,983.4 | | | 17,027.9 |
| 8-20 .. | 4.3 | 43.7 | 229.3 | 1,746.5 | 4,326.6 | 21,366.7 | | 27,717.1 |
| 20 and over | 0.2 | 2.7 | 17.8 | 119.6 | 103.6 | 1,244.5 | 18,859.8 | 20,348.2 |
| All .. | 187.9 | 1,194.2 | 5,200.5 | 30,918.4 | 15,413.6 | 22,611.2 | 18,859.8 | 94,385.6 |

If the special levy were imposed on the 136,365 incomes liable to sur-tax in 1945-46, 104,395 incomes would bear the tax, those where the investment income was more than £250. The total amount which would be raised by the levy is £94,386,000, making an average of about £900 per income. In the year when the levy is to be applied, it is officially estimated that there will be about 125,000 incomes, and the official estimate of the amount to be raised is £105 mn., an average of £840 per income.

Reverting to Tables IV and V we see that about one-fifth of the total levy will be borne by about 1,200 incomes of £20,000 or more, where the incomes are mainly investment incomes. About one-half of the total levy is borne by 11,632 incomes, i.e., about one-ninth of the total incomes liable, where the total income is £8,000 or more. All investment incomes of less than £2,000 only contribute about 7 per cent. of the total of the levy. The levy is raised on the few very rich with large investment incomes.

NOTE ON THE METHOD OF ESTIMATING THE FIGURES IN TABLES I AND II.

We apply the percentage figures in Table 49 of Cmd. 7362, 1948, to the distribution of incomes for 1945-46 given in Table 48 of the same report. In Table 48 we find 38,073 incomes between £2,000 and £2,500 aggregating £85,231,187 with an average of £2,239. Table 49 gives the percentages of the 38,073 incomes, where the ratio of earned income to total income lies within 10 per cent. limits from 0 to 100. Thus we have this distribution:—

| | Earned Income (%) | | | | | | | | | | Total |
|----------------------|-------------------|---------|---------|---------|-----------|-------------|-------------|-------------|-------------|-------------|--------|
| | 0-224 | 224-448 | 448-672 | 672-896 | 896-1,120 | 1,120-1,343 | 1,343-1,567 | 1,567-1,791 | 1,791-2,015 | 2,015-2,239 | |
| Number of incomes .. | 8,833 | 952 | 990 | 1,180 | 1,291 | 1,485 | 2,094 | 2,855 | 5,178 | 13,212 | 38,073 |

By interpolation we can estimate that the distribution of earned incomes is :—

| <i>Earned Incomes (£)</i> | | | | | | |
|---------------------------|---------|-----------|-------------|-------------|----------------|--------|
| Under 250 | 250—500 | 500—1,000 | 1,000—1,500 | 1,500—2,000 | 2,000 and over | Total |
| 8,946 | 1,066 | 2,513 | 3,579 | 8,147 | 13,822 | 38,073 |

Similarly we can estimate that the distribution of investment incomes is :—

| <i>Investment Incomes (£)</i> | | | | | | |
|-------------------------------|---------|-----------|-------------|-------------|----------------|--------|
| Under 250 | 250—500 | 500—1,000 | 1,000—1,500 | 1,500—2,000 | 2,000 and over | Total |
| 14,239 | 5,026 | 4,797 | 2,894 | 2,208 | 8,909 | 38,073 |

Thus we estimate that there are 13,822 of these 38,073 incomes between £2,000 and £2,500 where the earned income is between £2,000 and £2,500, and 8,909 incomes where the investment income is between these limits.

Proceeding in this manner we estimate the numbers in the various compartments of Tables I and II. The amounts of the incomes which are shown in these tables are estimated by assuming that the distribution in each range follows the Pareto pattern. This probably gives a better approximation than if we multiplied the number by the mid-range value in £.

Book Reviews

The Industrial Revolution. By T. S. ASHTON. The Home University Library. Geoffrey Cumberlege and Oxford University Press. 1948. 167 pp. 5s.

There are many approaches to the Industrial Revolution in Great Britain. One can approach from the perspective of developing industrial and agricultural technique; changing business and financial institutions; the shifting power of social classes and their standards of life; the rise and fall of political, social and cultural conceptions; the impact of wider events on Parliament and its legislation; the quantitative measures of growth and fluctuation in the economy. Professor Ashton's distinguished addition to the Home University Library embraces virtually the whole of the literature. Reflecting that literature, its main emphasis is on the course of technical change, the development of economic institutions, and the changing status and standard of life of the social classes.

In presenting his account of British society over these decisive years, Professor Ashton finds unity not in an abstract general theory of economic development, but in the response of the individual British worker, farmer, manager, entrepreneur, and inventor to the challenger of his environment. The book teems with men, women and children; and somehow the author conveys the meaningful intimacy won from a life's scholarship, down to the lovelorn second Duke of Bridgewater and the egregious Dr. Ure.

Professor Ashton's story begins with the first sixty years of the eighteenth century. He catches in many fields the slow advance and the sub-surface ferment of technical ideas and efforts which did not quite come off. Then, in a well-compressed chapter, he treats the classic 'wave of gadgets' which transformed the methods of British industry and agriculture.

Turning to capital and labour, the author examines first the institutions of business and banking, illuminating and enlivening the tale from the company records he knows uniquely well. Similarly, Professor Ashton's description of the evolution of the working force is given substance by his illustrations from detailed local conditions. He comes close to resolving persuasively the apparent paradox between statistical evidence for rising real wages and the well-documented horrors of life in the early industrial towns. His observations, in the subsequent brief chapter on individualism and *laissez faire*, concerning the importance of developing competent administration, as opposed to benevolent social theories, apply more widely than to Britain from 1800 to 1830.

A final chapter, on the course of economic change, summarises price and interest rate movements, harvest and other cyclical fluctuations.

Although it is not a matter of primary concern to his purpose, the author does not attempt systematically to relate the various elements of fluctuation. The course of economic change was certainly somewhat more shapely than this chapter would suggest.

The large conception which informs Professor Ashton's essay is that Britain was challenged, at about 1760, by a rapid rise in population, caused in turn by a relative fall in the death rate; and the challenge was successfully met by the wit and resource of those who made the Industrial Revolution:—

“There are to-day on the plains of India and China men and women, plague-ridden and hungry, living lives little better, to all outward appearance, than those of the cattle that toil with them by day and share their places of sleep by night. Such Asiatic standards, and such unmechanised horrors, are the lot of those who increase their numbers without passing through an industrial revolution.”

This eloquent and germane theme, backed by the sensitive and human scholarship that Professor Ashton has developed in the Unwin tradition, gives special stature to an admirable book, which is at once an introductory text and an essay of great maturity and wisdom.

W. W. Rostow.

Seen From E.A.: Three International Episodes. By HERBERT FEIS.
New York: Alfred A. Knopf. 1947. xi + 283 + vii pp. \$3.00.

This is a lively account of three episodes in American economic foreign policy during the recent war and the years immediately preceding it. Two of these deal with oil (chiefly with the Anglo-American Oil Agreement of 1946 and the supply of oil to Italy during the Abyssinian war) and one with rubber (the building up of a reserve stock by the United States in 1939-42). The author was Economic Adviser to the State Department throughout this period, and writes frankly as a man in possession of most of the relevant inside information. The story is generally fairly told, and there is no attempt to shift on to other countries an undue share of the blame for failure or hesitation in accepting proposals sponsored by the author when these were justified by subsequent events; and there is a welcome tendency, unusual in books of this type, to set out fairly the arguments of those opposed to the author's suggestions. Parts of the narrative throw interesting light on the working of the American government machine; they show much greater reliance (compared with this country) on temporary civil servants or on men outside the civil service. Another and less pleasing feature is the propensity of administrators to seek alliances with newspaper men to bring pressure on their own superiors or on members of the cabinet in order to further their own policy. The very different assumptions and methods of working of

the British and American public service are frequently reflected in this book. As is suggested in these pages the advantage lies sometimes with the British and sometimes with the American system; but the differences are probably deeply rooted in constitutional practice and in national temperament and they transcend the issues reviewed in this book.

The discussion of the two oil episodes is largely in terms of politics, presumably because the author has dealt elsewhere with the economic issues involved. This limitation may perhaps be an advantage, as the discussion of the rubber episode suffers in parts notably from weakness in economic analysis. Thus Dr. Feis implies that payment of the British war debt to America by means of deliveries of rubber could have been effected with much less strain than was inflicted on the British economy by cash payments. It is still a matter of dispute how far the British default was enforced, but there can be little doubt that in the conditions of the nineteen-thirties payment in rubber would not have been a smaller burden than payment in cash. This is obvious if the rubber deliveries had displaced an equivalent quantity of commercial imports. Even if the rubber deliveries had been kept separate as a government reserve stock, it is probable that the price of rubber and the quantities imported into the U.S. would have been affected, as stocks would have been allowed to run down. The necessity of raising the money in the U.K. would have been the same; while Malaya would have had to be paid for the rubber by British exports or by sterling balances in London, as the U.K. and the Colonial Empire are not interchangeable terms as is sometimes assumed in discussion on the balance of payments. Dr. Feis's account of the rubber situation during the war also suffers from weakness of analysis, or from insufficient factual information. The deficit of exports below permissible levels in 1940-41 is regarded as evidence of unrestricted production, and the author thinks that by the spring of 1941 the industry was working virtually at full capacity. Yet at that time export rights in important producing districts were still worth close on one-half of the world market price of the commodity, which is a remarkable oversight on the part of a high-ranking official of the State Department which was so closely concerned with rubber. The price of export rights is nowhere indicated in this book. Transactions in these are, however, mentioned and the author espouses the fallacy that their sales served to reduce the output of rubber. Dr. Feis pays too much attention to the absolute size or aggregate of the basic quotas, which were figures of little interest, since what mattered were the relative shares of the different countries and of the different classes of producer.

The detachment of the author and his obvious disregard of personal ambition and popularity are praiseworthy; but the level of analysis is disappointing in a book by a former teacher at Harvard.

P. T. BAUER.

✓ *The Conquest of Unemployment.* By E. VICTOR MORGAN. "Britain in the Future" Series, No. 1. London. Sampson Low, Marston & Co. Ltd. 1947. 182 pp. 7s. 6d.

This admirably lucid little book is primarily an explanation for the man in the street of the working of the economic system as seen through Keynesian eyes. But it is also an introduction to economics of the kind for which we have been waiting, based on an analysis of the national income and its fluctuations, and very well suited to provide elementary students with a rapid survey of the meaning of the subject.

Professor Morgan first sets out the requirements of an efficient economic system, starting with full employment; and the bulk of the book consists of an analysis of the extent to which modern capitalism achieves these. The conclusions reached are then briefly contrasted with socialism, of which the economic merits and demerits are stated, and its greater ability to ensure full employment is fairly recognised. As a consequence, the concluding chapter is devoted to the problem of achieving full employment in a free economy. To the remedies proposed in the 1944 White Paper on Employment Policy, Professor Morgan adds suggestions for national accounting devised so as to exhibit a prospective deficiency in demand, and the adoption of some or all of a series of measures appropriate to meet either a chronic deficiency or a temporary fluctuation in demand, as the case may be. Possibly this chapter is slightly too optimistic, but at least it will give beginners, as Sir John Anderson suggests in his Foreword, the idea that economics is really facing these problems, and can contribute something definite to their solution.

In two respects only does Professor Morgan's terminology appear open to criticism. One concerns his alternative for the ambiguous word "investment". To develop the savings-investment relationship he substitutes the term "borrowing-and-spending", but this would apparently exclude self-financed business investment, which is to-day too important a category to be thus disregarded. However, it may serve until the heaven-sent phrase is found. A more serious confusion may be illustrated by the author's neat introduction of the concept of inflation. This is defined (p. 54) as arising "if the expansion of income were pushed to the point of full employment, and there were still an unsatisfied desire to borrow and spend, then by definition, it would be impossible to increase the size of the national income any more, and further saving would have to be brought about entirely by a change in distribution". The necessity which the reader is under, to make a mental insertion of the word "real" before "income" in this sentence, is the gravamen of this second criticism. On page 23 net national income is defined in monetary terms, and it is confusing to use "national income" also as meaning real income, especially in the context of inflation, where monetary expansion is a familiar idea.

However, these are minor flaws in a very satisfying piece of work. Professor Morgan has produced an introduction to economics which it is a pleasure and a stimulus to read. It is to be hoped that it will be widely disseminated.

J. K. HORSEFIELD.

Le Contrôle des Changes. Tome I : Rapport Général. By A. PIATIER.
Institut International de Coopération Intellectuelle, Paris. 1946.
210 pp.

In August, 1939, under the shadow of war, the 11th session of the Permanent Conference for Higher International Studies met at Bergen to discuss "Economic Policy and Peace". From the deliberations of the economists assembled from 17 countries there have emerged two reports, of which this is the general section of the first, to be completed in three other volumes on the several countries. Written in 1939, it was printed, practically unaltered, in 1946.

The Conference was the outcome of two years of study and preparation in 26 countries, and the Report had the benefit of the documentation collected during this period. It draws extensively on the experience gained with exchange controls—chiefly in Europe—during the inter-war period; and contains a full survey of their origin, developments, and future prospects.

Although the post-war world has adopted machinery for international co-operation in the monetary field which the Conference could not foresee, the general conclusions of its *rapporteur* remain valid to-day. Thus, M. Piatier sets out four main classes of reasons which may be invoked in favour of instituting or maintaining exchange control: the need to defend one's currency against depreciation; the elimination of various causes of deficits in the balance of payments; protection against erratic capital movements; and the need to continue controls so long as the existing international political and economic situation persists, and so long as neighbouring countries practice controls. But even if all isolationist economic policies, and all preparations for war, were to disappear, M. Piatier concludes that the unequal distribution of wealth among nations would itself be sufficient to create the difficulties to which exchange controls appear as self-defensive reactions.

The path to this conclusion—pessimistic or realistic—is thoroughly trodden. The Report first examines the theory of exchange rates, and points out that the classical exposition needs to be supplemented, in particular to introduce imperfect competition, and substitution and income effects. Three different types of international equilibrium are then discussed, and special stress is laid on the *balance des comptes* as expounded by Aftalion, which groups imports and exports of merchandise, services, tourists' and emigrants' payments, interest payments, and amortisation. This leaves a balance comprising (a) gold

movements, (b) private capital movements and (c) official actions to adjust the balance. While this is certainly an advance over the conventional presentation of gold movements as the adjusting item, it still confuses dissimilar components. A more illuminating concept would seem to be the separation of current from capital items, and the isolation of official activities (including official gold movements) as the balancing item. But there are, of course, considerable statistical difficulties in the way of such an analysis.

An examination of the origins of exchange controls in the 1914-1918 war and in the Great Depression is supported by a review of the process in a number of different countries. This leads to the central interest of the book, a survey of the progressive autocratisation of the exchanges: action to influence exchange rates, control and direction of the exchange markets, and finally the "directed equilibrium" in which exchange transactions are subsumed into an autarchy—and generally an autarky.

This long middle section is particularly open to the criticism that it is not clear for whom the book is designed. Its intellectual standard varies considerably. Over a large part of the field it is, no doubt designedly, elementary—even to the point of over-simplification (as for example in its treatment of Exchange Equalisation Funds, pp. 86 and 176). Elsewhere, however, it enters into somewhat elaborate discussions of the techniques of controls which (besides having in some cases only historic interest) are not likely to be useful except to the specialist. He, however, will find in the Report as a whole a useful and tidy presentation of the types and processes of control, more comprehensive, because of wider geographical scope, than most of the literature in the same field which has since appeared (though still ignoring almost completely the complexities of Latin American practice). It is to be hoped that the Institute will continue its review, and will bring similar powers of orderly analysis and presentation to an examination of the profusion of post-war variants on this inexhaustible theme.

J. K. HORSEFIELD.

Great Britain, The United States and the Future. By J. E. TYLER. Stevens and Sons Ltd. 1947. xi + 130 pp.

Mr. Tyler has attempted to throw light on the possible course of United States foreign policy in the next thirty years. After considering the historical foundations of American policy, the consequences of two world wars and America's current world interests and ability to maintain them, he concludes that America will protect Britain because she needs a beach-head in Europe.

The United States has traditionally been isolationist, yet the outstanding fact of her foreign relations is that twice during the last 45 years she has intervened in a European conflict on the side of

Britain. In her early and most vulnerable years the United States was able to develop because she was subjected to little interference from European powers, then fully engaged in internal conflict. About 1900, however, there was an upsurge of German power in Europe to which she could not remain indifferent. Britain has constantly reacted with vigour against the threatened consolidation of Europe by an aggressive power, and when it seemed that Britain might be defeated and European power consolidated in German hands then the United States took a similar attitude. This did not imply a new American policy, but that now active measures were required to prevent outside interference in America. In the past the British navy had performed this function; the immediate United States' reaction to the fact that Germany controlled the seaboard of Europe from Scandinavia to the Spanish frontier in 1940 was to announce a determination to establish a 'two-ocean' navy.

The second world war removed Germany, France, Italy and Japan from the position of world powers, leaving only the United States, the Soviet Union and the British Empire. In the process it left a vacuum in Central Europe with a danger that the vacuum would be occupied by Russia. Mr. Tyler concludes that if a Europe dominated by Hitler was intolerable, one dominated by Soviet Russia would be no less so.

There is a rapid survey of the United States' world-wide interests, especially with regard to the balance of power in the Far East. Between the wars the problem was that both Britain and the United States had to consider the establishment of a balance against an over-mighty Japan, but neither was willing to resort to force and it is doubtful if either had it to use. Similarly it seems to be suggested that against Soviet Russia in the Far East, political considerations, as well as cost in money and effort, will forbid a policy of all-round United States intervention.

One appreciates the determination to study, not the sentimental attachments of the United States, but her power and interests. One agrees that the future success of the United Nations Organisation cannot be taken for granted. One wonders, however, if the book does not too often imply that in her relations with other countries the interests of the United States are contrary to those of the country with which she deals. If it is in United States' interests to trade with Europe, invest in China and buy oil from the Middle East, does not Europe also desire United States' trade, China her investments and the Middle East to sell oil to her? It seems an exaggeration to say "... the government of the United States could not afford to see Great Britain defeated" if it meant that Europe was dominated by a "great and militant power whose ambitions were at least a matter of uncertainty.... It might mean that the resources of all Europe would be used against the Western Hemisphere, if not in formal war then in some technique of economic strangulation". Further it might be

a dangerous exaggeration if in persuading America of its truth we begin to believe it ourselves and act as if it were true.

Britain has learnt to rely upon the United States economically, this book is teaching us that it would be safe to rely upon her for armed defence. In each case we complacently assure ourselves that the United States acts in her own interests quite independently of any sentimental attachments. Surely it is this attitude which justifies Mr. Tyler's statement, "The question . . . is whether she (Britain) can hope to preserve her present relative position."

H. S. BOOKER.

The Population of the Soviet Union: History and Prospects. By FRANK LORIMER. League of Nations. Economic, Financial and Transit Department. George Allen and Unwin Ltd. London. 1946. xiv + 289 pp. Cloth: 17s. 6d.; Paper: 15s.

This study of the population of the Soviet Union is the third of four demographic works in the League of Nations series. A treatment of this subject in English was badly needed, as very little is known about the population of Russia in this country. It is quite obvious from the detailed bibliography given in the appendix that Dr. Lorimer and Dr. Gordon, his Russian-speaking collaborator, have worked through a good deal of material which has remained relatively unknown to other demographers. But after reading the book one is left with a slight feeling of disappointment, though the fault lies probably with the data rather than with the author. .

Dr. Lorimer presents the basic outlines of the Soviet demographic situation. He deals with total numbers, sex and age distribution, urbanisation and the geographical location of centres of population. He makes ingenious attempts to estimate the volume of internal migration, mortality and fertility. It would seem churlish of a reviewer to complain of such solid fare, but one's mind turns immediately to other and more fascinating problems of demographic interest which are not discussed. What, for instance, is the average size and distribution pattern of Soviet families? What is known about nuptiality? Are the Russians subject to the same differences in fertility and mortality between different occupational groups as are experienced by Western peoples? What is known about mortality from different causes? It is difficult to know to what extent Dr. Lorimer has been prevented by lack of data from answering these questions, for he nowhere describes the system of Census taking and vital registration in the U.S.S.R. by which we might judge this matter. But the list of unanswered questions makes it clear how scanty is our knowledge of the detailed aspects of Soviet demography, even for the Western and more highly developed parts of the Union. All that seems to be available are the basic figures.

It is highly probable that the omissions are inevitable and that the necessary detailed figures have not been published. Even so, Dr. Lorimer's book will be valuable as a work of reference, for it records facts which have hitherto been available only to that restricted section of the public who can read Russian and who have access to Soviet sources. It is to be hoped that as conditions become more normal detailed information about the demographic situation in the U.S.S.R. will become available to workers in other countries. The Soviet Union is an outstanding example of a country which has recently undergone a process of rapid industrialisation, and the study of demographic changes associated with that process would be of particular interest.

E. GREBENIK.

The Fiscal Impact of Federalism in the United States. By J. A. MAXWELL. Harvard Economic Studies, 79. Harvard University Press. London: Geoffrey Cumberlege. 1946. xvii + 427 pp. \$5. 28s.

Professor Maxwell's object appears to be to make a study of all the diverse ways in which a federal constitution in general and that of the United States in particular, make it difficult to secure an adequate and balanced development of the social services. For this task Professor Maxwell is well fitted; coming originally from the Maritime provinces of Canada, he now holds a Chair in a New England university, and has also studied central/local fiscal relations on the spot in Australia. It is therefore not surprising that Professor Maxwell has been successful in bringing together a mass of interesting material; of the success of his method of presentation I am less sure. After a preliminary historical sketch (going back to the establishment of the Union) we are taken in Part I round the different lines of expenditure—defence, justice and police, social services and public works; in Part II the different types of taxes are covered, although more briefly. At each stage we note in what ways the activities and aspirations of the federal government on the one hand, and of the states and municipalities on the other, impinge upon each other. "From this complicated story it is hard to draw a moral," as Professor Maxwell himself says in respect of one part of his subject (p. 290). The method leads to a good deal of repetition—for instance, of the problems connected with grants in aid, which arise in virtually every expenditure chapter—and the one chapter of "Conclusions" is hardly sufficient to draw the scattered threads together.

The American problem is, of course, similar in kind to that of any democracy which seeks to preserve some autonomy for local or regional governments—as indeed Professor Maxwell seeks to show, by comparing the respective proportions of the different types of expenditure in the U.S. and U.K. by different levels of government (Table 2). (It should

be noted, however, that the influence of British local authorities is seriously overstated, through the neglect of the social insurance funds). In the U.S., as elsewhere, there is now a general demand for national standards of service. This aspiration comes up against serious inter-local differences in wealth and needs, against inadequate revenue available for local and regional governments—at least the poorer ones—and against the difficulty of finding an appropriate basis for grants, which will not itself be further disequalising. (Thus it is necessary to give positive grants to rich States in order to secure their co-operation in establishing standards.) Even in detail the similarities are striking. In the U.S. as in the U.K. it is the general rule that the poor areas try harder—but of course achieve much less. In both the most powerful vested interest in the social services is the old age pensioner; in both countries a major obstacle to efficiency is the expense of expert planning and administration in the smaller and poorer areas. In this respect the U.S., with its high management standards, seems to have been bolder than Britain; 100 per cent. grants for the purpose have been successfully tried (pp. 169, 230).

While a federal constitution is a lasting insurance against the danger of too much centralisation which we face in Britain, in almost every other way it complicates the issue. There is the difficulty of ensuring an appropriate distribution within States as well as between States—or the more general one of securing contacts between the federal government and the local authorities, contacts that are an absolute necessity if the “local authorities” are giant cities like New York and Chicago. Some of the success of the P.W.A. (as compared to other New Deal agencies) was due to the fact that, since its projects were national, it could deal direct with the cities over the head of the States (p. 165). There is the further difficulty that where the national area is very large it may be as troublesome to control the local agents of a federal department as to co-ordinate the efforts of regional governments—so that the alternative method of standardisation by decentralised national administration (for instance the British Assistance Boards) is much less simple to apply.

These troubles are intensified in the U.S.A., as compared with Canada or Australia, mainly because of the doctrine of State Sovereignty, the much greater strength of the States Rights interest, and the endemic jealousy between states. It is only too easy for progress to be held up because although “logic and justice indicated several simple solutions, no one (of these) was equally attractive to all the States” (p. 336). Finally, there is the abiding uncertainty as to what line the Supreme Court will take, an uncertainty which makes for hesitation and delay in hammering out any new approach.

On the tax side Professor Maxwell makes a strong plea for a complete overhaul of federal/state fiscal relations. There is no doubt that this is long overdue, and it has only been possible to postpone it so long because, until recently, revenue demands at all levels were low, so

that the problems inherent in competitive exploitation of revenue sources by different governments never became urgent. With the increased needs of the federal government and the expanding desire for social services this can no longer be the case. Professor Maxwell comes out boldly, and surely rightly, for the eventual federalisation of both income taxes and death duties. In the meantime, until this can be brought about, he suggests that the States be confined to low proportional rates in both taxes, thus keeping competition with the federal government to a minimum, avoiding the disequalising tendencies of progressive regional taxes on the one hand, and reserving the flexible and expanding part of the revenue for the greater needs of the federal government on the other.

URSULA K. HICKS.

Le Collectivisme devant l'Expérience. By JEAN PAUL KOCH. R. Pichon and R. Durand-Auzias, Paris. 1948. viii + 243 pp. No price.

This is an interesting and informative book on a vast subject the pursuit of which has taken M. Koch into many remote corners of history. Throughout he has his eyes on Soviet Russia, but the Soviet experiment is not here primarily in question. M. Koch does indeed in his concluding section approach more directly the question of Soviet Communism, and holds out the prospect of a further volume devoted exclusively to this subject. Here, however, we are still on a preliminary investigation. While admitting that what has been happening in Russia is on a vastly greater scale than anything previously attempted, nevertheless in order to assess the various elements in that great experiment it is of interest to enquire what have been the conditions of success, or comparative success, in previous endeavours to establish communism, and what ultimately has led to their failure. It is to this somewhat wide investigation—wide both in geographical distribution and in time—that M. Koch devotes this volume, taking care to remind the reader from time to time that these enquiries derive their importance from the bearing which his conclusions may have on the Russian problem.

M. Koch finds, and finds rightly, that collectivist experiments have been established under the banner of an ideal, whether that ideal be religious, national, or a social ideal of justice and equity. But indeed his three types of ideal are apt to get entangled; and the Jesuit "réductions" in Paraguay and the allegedly socialist empire of the Incas refuse to be brought exclusively under any of M. Koch's divisions. On primitive Christian communism he appears to speak to a certain extent with two voices. In one passage he remarks that "nous pouvons l'accepter sans discussion"; but later he seems to suggest that the primitive communism of the Church at Jerusalem (in the light of the acid test case of Ananias) was rather an extreme example of voluntary sharing, imposed by a combination of religious

faith and economic necessity, and tending to become a subsidised communism at the expense of the other churches. In the chapter dealing with the Benedictine monks, M. Koch says, rightly up to a point, that the ideal proposed by St. Benedict was that of a Christian family; but neither here nor anywhere else does he draw attention to the fact that monastic communism was made possible by the elimination of woman, the arch-individualist, and the home. St. Benedict may have aimed at a Christian family, but it was a family without wives and children; and as Plato, Campanella, Fourier and many more have realised, such a simplification of life would enormously facilitate any experiment in communism.

The Jesuit settlements in Paraguay and the rule of the Incas furnish many interesting object lessons. Here we have rigid socialism imposed from above. The Paraguay experiment shows in a revealing manner the tendency of the completely collectivist state to exclude as far as possible all contacts with the outer world. Even more topical, unfortunately, is the complete prohibition of movement of the individual under the Incas, combined with a readiness to move whole tribes where this was considered expedient. The government of the Incas raises curious problems, for, despite the severe discipline, a considerable measure of general happiness seems to have been attained. On a purely utilitarian view, the rule of the Incas was probably not unsuccessful. But this 'happiness' would appear to have been bought at an enormous price, for the population at large were in a sense treated as animals to be taken care of—"une ménagerie d'hommes heureux" is one description. This, even if deplorable on moral grounds, is less objectionable than the insecurity which inevitably springs from the combination of a government which does everything and a population denied all responsibility and initiative. For when the test comes and the rulers are for any reason removed, such a civilisation inevitably crumbles from the absence of what Montesquieu would have called 'political virtue' in the people at large.

The collectivism that is based on national ideals, so far as M. Koch's discussion is concerned, is confined to the influence of preparation for war and of war conditions in reinforcing the power of the state at the expense of the individual. This springs from expediency or necessity; it rests on no enduring ideal; being a method of weathering a crisis when the freedom of the individual may be a danger, it is of necessity professedly temporary, even if in practice in these days there may be an urge to retain for other purposes a collectivism originally imposed to achieve temporary ends.

In the section dealing with collectivist experiments inspired by a social ideal, M. Koch traverses a good deal of familiar, and some not so familiar, ground. Interesting, and indeed fascinating, as some of these curious nineteenth century experiments are, it is doubtful whether much of value can be learned from the various settlements associated with the names of Robert Owen, Cabet, Considérant,

Godin and others. They failed for all sorts of reasons. Owen probably got the wrong people; the Icarian experiments provide a lamentable history of financial ineptitude, of squabbling and of repeated schisms. But in all such cases it is noticeable that the original communistic or collectivist 'faith,' if it ever existed, soon evaporates, and the continuance (one hardly dares to say the 'success') of the experiment depends on the personality of the leader.

The lessons which M. Koch draws are reinforced in a Preface by Professor Oulès, of the University of Lausanne. Above all, the recurrent thought is that collectivism demands a faith, something of the nature of a religion, a *mystique*, to keep it going, and with that there is emphasised the supreme importance of leadership. When the faith is sapped, as inevitably it tends to be sapped in a corroding world, when the leader goes, as go he must, the experiment almost inevitably founders.

M. Koch has read all the leading authorities on each of the episodes discussed, and he tells his story simply and well. Perhaps he tends to quote his authorities rather too freely; but if this be a failing, it is a failing on the side of modesty, and therefore pardonable.

ALEXANDER GRAY.

Applied Economics: Aspects of the World Economy in War and Peace.

By A. J. BROWN. George Allen and Unwin Ltd. 1947. 252 pp. 15s.

Of the seven studies in this book the three chapters on the war economy (containing much material which has appeared before) sharpen the impression of the unpreparedness of the Western Allies ("the powers which faced Germany in September 1939... had budgeted in the previous year for an armament expenditure little more than a third as great as that of Germany") and their astonishing ability, once roused, to fight the war by drawing on idle resources ("the main overseas belligerents on the United Nations side provided the sinews of war overwhelmingly by expanding their real incomes"). Any speculation on the possible connection between these two characteristics of the last war is inhibited by the strong likelihood that they will be of negligible importance in the next one.

Professor Brown's main contribution to what the textbooks of the future will, I suppose, refer to as the problems of the peace economy, consists of an incursion into the field of international comparisons of productivity ("Industrial Efficiency and National Advantages") and two studies on international trade. On productivity comparisons, Professor Brown says quite rightly that the use of (physical) output per man-hour as a measure of industrial efficiency is 'highly dangerous' and explains United States superiority, so measured, over Great Britain as being due *inter alia* to the relative scarcity of industrial labour. (Perhaps somebody will presently assure us that comparisons of

output per entrepreneur-hour would reveal British superiority over the United States—for analogous reasons?) *Capital* was not scarce in America while British capital exports to the United States during 1865-1913 averaged 10 per cent. of the British national income. The conclusion therefore is that under free conditions and for the period mentioned, lower physical productivity per head in British industry was a condition of the efficient utilisation of British resources in general. Those who have not yet recovered from the shock of Dr. Rostas's article on the subject¹ should ponder this.

The first international trade study adds one more to the pile of depressing inquests which have been recently undertaken on British exports during the inter-war period, without changing the verdict much. The second attempts to explain the pattern of (pre-war) world trade by isolating "degrees of complementarity" after making what Professor Brown thinks are due allowances for other factors such as the physical size and national incomes of the countries concerned. The allowances seem to the present reviewer to be made in such an arbitrary way that little practical significance can be attached to the results.

It is obviously impossible to review adequately each of the seven studies. Considered together, they give the impression of a competent and imaginative writer at work on several highly important topics, undeterred by the sketchiness of existing knowledge of the subject (there is an essay on atomic energy) and indeed happiest when faced by the task of making bricks without straw or national income estimates on the basis of Whitaker's Almanac and the country bank clearings (which he almost does in Chapter 2). Not the least merit of these studies is that some of them were produced under great difficulties during the war, when, as the author explains, he was "concerned primarily with more immediate matters".

A. S. J. BASTER.

Estimating Housing Needs. By ALEXANDER BLOCK. With a Foreword by Sir Patrick Abercrombie. The Architectural Press. London. 1946. xiv + 128 pp. 10s. 6d.

Housing and the Family. By M. J. ELSAS. Meridian Books. London. 1947. 136 pp. 8s. 6d.

Both these books deal with housing problems, but they cover rather different fields. Dr. Elsas briefly discusses a variety of topics ranging from the sizes and conditions of dwellings to housing policy, rent rebates and similar subjects. He also presents an analysis of replies to a questionnaire which he sent to a number of local housing authorities under the auspices of the Population Investigation Committee. The treatment is severely factual throughout, there is

¹ *Economic Journal*, April, 1943. It is only fair to add that the latest manifestation of Dr. Rostas accessible to this reviewer ("International Comparisons of Productivity," *ILO Review*, September, 1948) is considerably less alarming.

little comment, and, on the whole, the reader is left to draw his own conclusions.

Mr. Block, on the other hand, has restricted himself to a very much narrower field: the estimation of housing needs, both present and future. This is a subject on which Dr. Elsas also comments briefly. Mr. Block analyses the statistics available on the subject of potential households and has no difficulty in finding a number of inconsistencies and of even greater inadequacies. His main theme is that the demand for dwellings is made up of persons who wish to form a separate household and that no simple relation exists between the number of such persons and the number of biological families. The persistent use of the term "private family" by the English Census authorities when "household" is really meant has contributed to the confusion in the use of these terms. Present English housing statistics are not designed to reveal the potential demand for housing with any degree of accuracy and a special *ad hoc* enquiry would be needed for that purpose, but such an enquiry would present peculiar difficulties, both in its execution and in its interpretation.

In the absence of statistics showing the distribution of households by size the demand for different sizes of dwellings cannot be assessed either. Surveys have shown, however, that the type of new dwelling supplied by a local authority very frequently does not correspond to the needs of the area. It is clear, for instance, from the replies to Dr. Elsas's questionnaire that there is not enough variety in the size of houses built and that in particular far too many houses of the two- and three-bedroom type have been constructed.

Passing on to the subject of forecasting the future demand for housing space Mr. Block points out that the demographic factor is by no means the only factor, nor even the most important one to be considered. To-day people look to their dwellings to provide not merely shelter, but also much desired privacy. It is not easy to estimate how many households which are to-day "suppressed" will wish to have a dwelling of their own as more housing becomes available. The demographic component of housing demand could be estimated with greater accuracy, but even here those responsible for population projections have not always been as helpful as they could be. It is to be hoped that future forecasts will be framed so as to take into account explicitly both the number of newly-created families and the distribution of families by size. This would do away with the type of crude household index which both authors are at present compelled to use.

So far as the supply position is concerned Dr. Elsas and Mr. Block both devote a little of their space to a discussion of the age distribution of existing houses, another subject on which official statistics are rather defective. What is conspicuously lacking in both books, however, is a discussion of the extent to which potential housing demands can be met to-day, taking into account present shortages. Nor does

Mr. Block consider the relationship between the demand for new dwellings and the rents that would have to be charged for them. Both authors give the impression that cost considerations are secondary, although it is much more likely that such considerations rather than potential demand will determine the future level of building activity.

E. GREBENIK.

Finansprocessen i det Økonomiske Kredsløb. By Jørgen Gelting.
Forlaget for Videnskabelig Litteratur. Copenhagen. 1948.
304 pp. Dan. Kr. 12.00.

The subject of this book is the interplay between the State finances and the private sector of the economy. The treatment is throughout in Keynesian terms, but the author has by no means ignored what he calls the "discriminating" effects of taxes and State expenditure, and has not concentrated only on the income-generating or -destroying ("circulation") effects.

After an introduction and a chapter on the mercantilists comes the most important chapter of the whole book, on the relationships between State expenditures and receipts and the level of income, consumption, imports, etc. After a table of symbols and an ingenious diagrammatic representation of the determination of the level of national income, the reader is plunged into a formidable list of thirty-six multiplier-type formulæ. These relate to a system where the main variables are: income, consumption and investment, exports and imports, direct and indirect taxes, State purchases and State wage payments. The author has not bothered to help the reader much, and the latter has a difficult job in working through the formulæ. Some of these are ordinary multiplier formulæ, giving the relationship of national income to changes in exports, direct taxes and so on, under various assumptions. The multiplier effect of a balanced increase in the budget comes in, with more variables considered than in the 'Econometrica' discussion. (Gelting first wrote on the matter in 1941.) Other formulæ show how much taxation must be increased to offset a rise in State expenditure so that national income is unchanged.

An interesting feature of the model is that Gelting does not restrict it to the special case of constant prices, though wage rates are assumed constant. The aggregate supply curve is thus not assumed to be infinitely elastic. This involves the assumption that the various "leakages" are functions of money income, not of real income, and while this is realistic as concerns tax revenue and imports, it seems questionable as concerns saving. It means that the distribution of income between consumption and saving will be independent of the level of prices and thus unaffected by changes in indirect taxes. It is also assumed that exports are not affected by changes in national income. If either or both of these assumptions are not approximated, as seems likely for many countries if not for Denmark, then, as in the

standard works on the multiplier, prices must be assumed constant in Gelting's model.

The chapter concludes with a discussion of the "automatic finance reaction" where the State acts passively when the level of income changes, and shows that normally a fall will produce a budget deficit of some magnitude so that even passive public finance has a considerable stabilising effect.

Chapters 4 and 5 bring in the complications of the interest rate and of exchange rates and trade policy. Since it is difficult to say much in general about their interconnections, these two chapters (and a later chapter on the means of economic stabilisation) consist largely of the consideration of different ways of achieving different policies. This is a trifle tiresome: one may well wish that the author had taken fewer cases and treated their practical as well as their theoretical aspects. It is too easy to write, for example (p. 115) that the State shall increase company taxation so much "that the investment activity of companies is reduced to the same extent that building is increased as a consequence of the reduction in the rate of interest". In spite of this other-worldly treatment, however, there is much more discussion of the effects of measures on particular sections of the economy than is usual in the theoretical literature; the analysis is not too 'macro'.

The next two chapters contain less that is new, but give a very useful survey of the theory of the effects of different kinds of taxation on investment and consumption. Chapters 8 and 9, finally, are concerned with economic stabilisation and some long-run problems.

The book as a whole is well worth reading, both as a new contribution and because it shows how much more work there is still to be done even in the field of comparative statistics. (The greatest need in macro-economic theory seems to be the inclusion of price changes in the analysis, and the further other aspects are developed in books such as this, the more obvious is that need.) The reader cannot help but feel, however, that many of the incidental discussions could with advantage have been left out or put in appendices. The sections on limits to the national debt, for example, and on the statistical evaluation of some important co-efficients are too scanty to be really useful. Lastly, to give a list of illustrative arithmetic values, with four sets of assumptions, for each of twenty-four multipliers, so that no less than *ninety-six* are listed, seems a trifle unproductive.

R. TURVEY.

/ *The Theory of National Economic Planning.* By CARL LANDAUER. University of California Press. London: Cambridge University Press. 1947. viii + 274 pp. \$4.00.

This book is concerned with the problem of full employment. Its author believes that monetary and fiscal policy alone will not suffice and that planning is therefore necessary to take over from the market its function of the co-ordination of individual activities. Planning is

defined as "guidance of economic activities by a communal organ through a scheme which describes, in quantitative as well as qualitative terms, the productive processes that ought to be undertaken during a designated future period" (p. 13). Why such general planning is essential if full employment is to be secured is not made very clear: the criticism of the sufficiency of what the author calls 'Credit Planning' seems inadequate. It may be that he is conscious of this, for on page 11 he says, "however, there is no reason why planning, once instituted, should not be made to serve other purposes as well".

The type of planning which the author proposes is to control, not supersede, private enterprise, so that prices must be set at a level which will give producers a surplus over costs. Consumers' sovereignty too is to be allowed, and the plan must thus "provide for an equilibrium between marginal cost and marginal utility of the product in every industry and production unit".

In making the plan, the planning board is to make an inventory of resources, "draw all the more important supply curves . . . and make reasonable estimates concerning the demand curves for the important commodities" (p. 69). This, of course, completely ignores their interdependence. Of its practicality the author seems to be in little doubt for he writes that "some more effort will bring us to the point where we can answer . . . with sufficient accuracy" questions such as what "a farmer possessing a certain number of acres in a given part of Iowa will buy in a given year if his labour power is fully used" (p. 33).

Having estimated demand and supply curves, the planning board makes its plan for a forthcoming period not by the simultaneous solution of a mass of equations, but by applying "the trial-and-error process on paper to those processes of production in which the optimal course for one firm or individual is determined by the actions of others" (p. 60). (What processes are then excluded?) Since demand will be estimated for groups, and not for each and every individual, "the equations will not reach a fabulous number, but it is quite possible that a few hundred thousand combinations have to be taken into account. Why this should exceed the power of algebraic analysis is difficult to see. It probably does not exceed the amount of calculation work which a hundred middle-sized engineering firms have to perform in a week" (p. 62).

In view of this statement, readers will be inclined to agree with the author when, a little later, he begins the chapter entitled "The Execution of the Plan" by saying, "Even the wisest planning board cannot be expected to draw up a faultless plan".

As a whole, in spite of some interesting passages, the book does not live up to the expectations aroused by its title. What is said seems impracticable; even macro-economic planning of the Dutch type raises immense difficulties, yet these are but an infinitesimal fraction of those which arise in the micro-economic (detailed) planning proposed in the book. Adherence to the principle of consumer sovereignty, the

multiplicity of private firms in each industry and the immense variety of production in countries with a high standard of living, present problems that Soviet planning does not have to face. On the other hand, the author fails to consider a number of interesting theoretical and practical matters such as the usefulness of the Leontiev *tableau économique*, the budgeting for a single bottleneck factor (e.g., coal) or the calculation of export targets. It is true, as he says, that we lack opportunity of studying Russian planning, yet hardly anything is said of German planning experience which can be studied. The construction of blue prints without reference to practical problems and vague attempts at stating principles of planning cannot, in short, be said to add much to the subject.

R. TURVEY.

Les Assurances en Suisse et dans le Monde. By JEAN HALPÉRIN. Editions de la Baconnière, Neuchâtel. 1946. 275 pp.

Dr. Halpérin sets out rather ambitiously to trace the part played by insurance in the economic and social evolution of the past six hundred years. After a rapid survey of the development of private insurance in Europe, the U.S.A. and Japan, he conducts a more detailed examination, in great part from primary sources, of the birth and the startling growth in the past hundred years of insurance in Switzerland. Swiss commercial insurance enterprises are of world-wide importance despite their late start (in 1858) and the early intervention of Federal supervision (in 1885).

The author of such a work is bound to start more hares than he catches, and perhaps inevitably the scale of his work is open to a few criticisms. For example, social insurance finds only a minor place, while the development of insurance in Germany is sketched with a lighter hand than its interest warrants. It is curious, too, to find a historical survey of fire insurance in Great Britain with no mention of the *Hand-in-Hand* which pursued an independent existence from 1696 to 1905. But every corner of his large canvas is filled with matter both interesting and suggestive. The field has been so sparsely covered in the past that any new entrant is probably right in spreading his efforts as widely as possible, leaving to later comers the cultivation of smaller chosen strips.

Dr. Halpérin claims many distinctions for insurance, among them the establishment of the world's first cartel, formed by the British Fire Offices in 1858. The history of insurance cartels still awaits study.

The author's documentation is remarkable and his use of material almost irreproachable. With the citation of so many facts, a few discrepancies are inevitable. For example, three differing dates are given on pages 182, 192 and 229 (note) for the foundation of the Swiss Caisse nationale d'assurance en cas d'accidents, and two dates for the foundation of the old Equitable, on pages 66 (correctly as 1762)

• These minor criticisms apart, Dr. Halpérin's study is a valuable one, and all the more for readers in Great Britain where, despite the special place of insurance in the British economy, its history has so far received little consideration. Of 113 works in the author's select insurance bibliography only nine were published in this country. British insurance archives remain largely virgin, except where they have been ravished by the amateur writers of centenary histories.

H. A. L. COCKERELL.

Production in the United States, 1860-1914. By EDWIN FRICKEY.
Harvard Economic Studies, 82. Harvard University Press.
London: Geoffrey Cumberlege. xii + 265 pp. 22s.

This book must be considered essentially as a statistical supplement to Professor Frickey's *Economic Fluctuations in the United States*, the main objective being to show how the various indices of production analysed in the previous volume were constructed. The author now elaborates how the annual indices of physical output in manufacturing industry and in transport and communication from 1860-1914 are built up and combined together. Secular trends are fitted to the combined series and figures are given for the durable and non-durable components of the manufacturing sector. In the case of the transport index seasonal variations are eliminated too. It is particularly interesting to note that the trend line fitted to the combined group indices is of the form $\log y = a + bt + ct^2$ (where y = output, t = time, and a, b, c , are constants). All in all Professor Frickey's work has considerably increased our knowledge of this important period of economic development. It is most valuable (especially when read in conjunction with the work of A. F. Burns and W. H. Shaw) for the years before 1900.

Despite our admiration for the painstaking way in which Professor Frickey has set about his task we must ask whether he really justifies his claim to have produced indices of manufacturing activity and of transport and communication. (It must be said straightaway that the index of transport, etc., is much inferior to the index of manufacturing activity, and although our remarks here are mainly about manufacturing activity they can be taken to apply *a fortiori* to transportation.) The first point is that many of the series used are not production series at all—raw cocoa imports, raw cotton consumed, automobiles in use, for instance. Secondly, the choice of series used is somewhat peculiar. To construct the manufacturing activity index we have at one extreme raw materials series such as copper consumed, and at the other consumer perishables such as wheat flour produced. The only principle of choice seems to be that an attempt is made to cover each of the major groups of the Census of Manufactures so that a system of weighting on a value-added basis can be used. But even this is not thoroughly carried out; some Census groups (Leather, Stone, and Glass, cf. p. 24) are omitted altogether and others (e.g., Food and Chemicals) are very inadequately represented.

Now clearly these deficiencies can in part be explained by sheer lack of data. Rough approximations are inevitable in work of this sort. Nevertheless one cannot help wondering whether the author has really appreciated the logical problems involved in constructing an index of production. For instance, he nowhere discusses in detail the problems of defining units of "quantity". As a result it is assumed (p. 202) that a series of raw cotton consumed (adjusted for foreign trade in cotton cloth) can be taken to represent the output of cotton fabrics. But what is a unit of, for instance, women's cotton dresses? If fashions change and the quantity of cloth per dress is doubled, there is, *cet. par.*, a great increase in activity according to Professor Frickey's index. If on the other hand the amount of cloth used does not change but instead more buttons or ornaments are added there is no increase at all on his showing. Does the index give the right answer in either of these cases? Clearly, "quantity" is not a simple concept at all and the difficulties surrounding it cannot be ignored or put on one side. Another problem which the author never really tackles is the exact nature of his index. The general tenor of the argument suggests that he wants to construct an index of all activity (including, e.g., work in progress) in the manufacturing sector of the economy, but in the final chapter (pp. 125-6) it appears that he is confining himself to the more limited and more easily realised aim of only covering deliveries of finished goods. Any assessment of the value of the index must obviously depend on which criterion is paramount.

Another point which is never really made clear is whether the indices are primarily useful in measuring cyclical fluctuations or long-term trends. If the former, the general neglect of variations in stocks is a serious drawback and, furthermore, the transport and communication index would appear to lose a lot of its value owing to the approximate and unrepresentative nature of many of the individual series; if the latter, the dangers of assuming close correlation between materials used and output (e.g., raw wool and wool cloths, p. 147) are immediately apparent. Nor is the treatment of the errors involved adequate. Computation of margins of error in any objective mathematical way is obviously impossible, but surely we ought to be told whether, for instance, the biases in the estimates are, in the author's opinion, more likely to be random or systematic in character.

Of course, many points of detail could be singled out. To take only one, the wheat flour production estimates (pp. 135-9) are based on a consumption series without any allowance for industrial usage of flour or for any flour content of exports of, say, manufactured foods. But it would be ungracious to single out a lot of points of this sort in an enterprise of such magnitude. We should be grateful to Professor Frickey for the light shed on the statistical Dark Ages much as we may regret the conceptual omissions.

A. R. PREST.

Grundzüge der Theoretischen Nationalökonomie. By ALFRED AMONN.
A. Francke AG. Verlag, Bern. 1948. 199 pp.

Professor Amonn explains in his foreword that, as contrasted with a whole series of works available in English, in German there has for a long time been lacking any modern exposition of economic theory. As an exception, Professor Amonn mentions Stackelberg's *Grundzüge*, and in an appendix devotes to it a comparatively lengthy critical 'Auseinandersetzung'. (As further exceptions there are the recent books of Böhler, Röpke, and Schneider, actually mentioned at the end by Professor Amonn, and also, less recently, the *Einführung in die Grundlagen der Theoretischen Nationalökonomie* of Strigl published in 1937.)

It is difficult to 'translate' this book in the sense of naming a roughly equivalent British or American work. It confines itself much more narrowly to 'theory', and is much briefer, than the books of Benham and Cairncross. It covers a much wider range of subjects, very much more thinly, than Stigler's *Theory of Price*. In addition to value, price and distribution, there is discussion of the value of money, the trade cycle, international trade (comparative costs and criticism of the purchasing power parity theory), welfare theory, and economic policy.

Professor Amonn opens by nailing his colours firmly to the equilibrium mast: "So long as a, to some extent, free exchange economy exists, exchange value, price, . . . the tendency to equilibrium, and the treatment of equilibrium, retain their significance . . . What has altered in the last generation and to-day continues to alter are the conditions under which exchange takes place, not the essence of exchange itself." His introduction and first two sections give an excellent survey on accepted lines of the main problems of value, price, and the forms of markets. His section on the value of the factors of production is much more questionable. He rejects the marginal productivity theory as circular (as in a sense, of course, it is, though not necessarily in a very relevant sense), and expounds (p. 104) a principle which seems either highly vulnerable, or rather trivial, which he calls that of "the inevitable differences in the prices of products in accordance with the quantities of the different means of production which have to be spent in making them".

A valuable feature of the book is that as far as space allows, which is not very far, Professor Amonn skilfully sketches in an outline history of the theories of some of the main subjects he discusses. Most similar works in English make no attempt to provide such a background. Incidentally, it is surely inaccurate to say (p. 54) that Marshall was the first to state the law of indifference in a perfect market.

Perhaps this book should either have been rather shorter and confined (like Stackelberg's) to value, price and distribution, or considerably longer with its 20-page section on money, prices, and the trade cycle much enlarged. For wide though its scope is, it contains

virtually no mention (apart from the 4 pages on the trade cycle) of the subjects of employment and unemployment, and movements in national income and output. There are a few lines on inflation and deflation, the former being described as the result of an increase in the quantity of money or a change in its velocity of circulation. The account of the trade cycle concludes with special emphasis on the importance of disequilibria in interest rates.

This book's claim to be a modern exposition would seem to rest on the assumption that nothing has happened to economic theory which should affect an introductory survey of the subject, since Hicks' and Allen's "Reconsideration of the Theory of Value" in 1934, and the work on imperfect competition of about the same date. It seems to confirm other evidence of the comparatively slight enthusiasm there has been throughout the German Sprachgebiet, until fairly recently, for the subjects of employment and movements in national income.

A rustic ignoramus confronted with certain recent examples of feminine fashions might fall into the error of classing them as quaint anachronistic survivals from past decades, and refuse to accept them as expressions of the latest ideas of 1948 and 1949. On the other hand, with regard to this book, though the possibility of a corresponding *gaffe* should not be entirely ruled out, most Anglo-Saxon readers will probably decide that it is a certain 'period' charm, rather than ultra-modernity that must lend these Grundzüge their appeal. This is, of course, not necessarily an adverse criticism, and even if to some extent it is, Professor Amonn largely disarms it. For he most admirably emphasises, both in his foreword and at the end, that particularly in the present state of the subject it is of great value for the able student to try to understand and compare critically different approaches to the elements of the subject and to get the best out of each.

T. W. HUTCHISON.

✓ *Economic Analysis*. By KENNETH E. BOULDING. New York, Harper & Brothers. Revised edition. 1948. pp. xxvi. \$84.

During the seven years which have elapsed since the first edition of Professor Boulding's *Economic Analysis*, the National Income approach to the teaching of economics has become much more popular. The revised edition of this textbook clearly reflects this change, and the modifications make the book more useful. Whereas the first edition was in two parts, one being "Demand and Supply" and the second being "The Marginal Analysis", the revised edition is in four parts, one, "Demand and Supply", two, "Macroeconomics", three, "The Marginal Analysis" and four, "More Advanced Analysis". With the exception of the chapter on banking (chapter 15 of the first edition) most of the part on macroeconomics is new, and deals with

aggregation, flow analysis, unemployment and the business cycle, and the impact of government policy on the economic system. Parts three and four are formed mainly by a reshuffling of the chapters in part two of the first edition, so that the chapters on "The Advanced Theory of Monopoly" and "The Advanced Theory of Consumption" become part of the section on "More Advanced Analysis", but there is the important addition of a chapter on "Applications of Indifference Curve Analysis". Within this chapter, problems seem to be treated on two distinct levels. The derivation of the market demand curve is shown in some detail, firstly in the case of indifference curves which are vertical projections of each other, and then without this limitation. Yet in the case of the geometrical representation of the theory of exchange, Professor Boulding illustrates the case of two-person two-commodity barter by reference to the indifference maps of each of the two persons, but does not superimpose one upon the other and examine the bargaining locus, contract curve, and offer curves. Then, in the case of the representation of economic surplus, he economises on diagrams by using again that of the general derivation of the market demand curve—which has the effect of crowding rather too much on one diagram, with a consequent loss in clarity.

In view of the absence of the contract curve from even the "More Advanced Analysis", it is rather surprising to find that the appendix on the geometry of the marginal revenue and marginal outlay curves, an appendix to the "Elementary Theory of Monopoly", should treat the elasticity of the marginal revenue curve in terms of calculus. This elasticity is shown, with reference to the elasticity of the

demand curve, as being equal to $\frac{e + 1}{2 + q \cdot \frac{dq}{dp} \cdot \frac{d^2p}{dq^2}}$. "If the demand

curve is a straight line $\frac{d^2p}{dq^2} = 0$, and the above formula reduces to

$e_m = \frac{1}{2}(e + 1)$. In these circumstances it is necessarily true that the more elastic is the demand curve at any point, the more elastic is the marginal revenue curve at the same output. If, however, the demand curve has a considerable degree of curvature, this proposition may not be true" (page 547). Perhaps, in an appendix on geometry following a chapter on the elementary theory of monopoly, it would have been simpler to have represented this diagrammatically in the straight line case, from which it would also have been obvious that a curved demand curve would yield a different relationship between the two elasticities.

The new edition has a very useful list of the diagrams, for quick reference, and an appendix on the "Literature of Economics" which gives an indication of the source of some of the ideas in the book.

DOROTHY HAHN

SHORTER NOTICES

Les Grands Problèmes de l'Economie Contemporaine. By BERTRAND NOGARO. Paris: Presses Universitaires de France. 1945. 128 pp.

This booklet is intended as a very elementary account of the principal economic topics, to appeal to the general reader rather than to the student embarking on a course of economics. Thus the language and method of exposition are popular. Professor Nogaro has considerable powers of exposition and certain problems, notably those on the inter-relation of different prices in the economic system, are very well discussed and are presented much better than is usual in elementary textbooks.

Money. By D. H. ROBERTSON. Cambridge Economic Handbooks. Nisbet and Cambridge University Press. Fourth Edition. 1948. xviii + 223 pp. 6s.

Professor Robertson's *Money*, which had not been revised since 1928, is now republished with little change except the addition of two chapters, one on the course of events and one on monetary thought during the last twenty years. These additional chapters will be read with delight by the initiated. The more elementary student will be able to follow the chapter on events without serious difficulty (though he will miss many of its subtleties); but understanding of the chapter on the monetary thought is unlikely except after some acquaintance with the main works of the period. The book as a whole probably remains a second-year rather than a first-year book.

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The Economist in the Twentieth Century:

AN ORATION DELIVERED ON THE 53RD ANNIVERSARY
OF THE
FOUNDATION OF THE LONDON SCHOOL OF ECONOMICS

By LIONEL ROBBINS

I TAKE it that the object of an occasion like this is to enable us to stand back, as it were, for a short interval and to endeavour to see what we do in our daily lives against something larger than its accustomed setting. When, therefore, you did me the honour of inviting me to deliver this oration, it seemed to me that the best thing I could do would be to take my own profession, the profession for which several hundreds of you are preparing yourselves, and to try to examine its place and its duties in the century in which we now live. The position of the economist at the present day is undoubtedly very different from what it was in earlier times. Wherein does the difference consist? What is expected of us in our day and age? How far are we capable of performing what is expected?

I

If we approach this problem from the point of view of descriptive economics, the conspicuous difference between the position of the economist now and his position earlier on is the emergence of economics as a professional study, with organised centres of learning and permanent positions for its practitioners. The change in this respect is remarkable. The great works in which economics was first given systematic form were not written by professional economists. Cantillon was a banker, Adam Smith a professor of philosophy, Ricardo a stockbroker and John Stuart Mill an official of the East India Company. In a very few universities, in the nineteenth century, there existed chairs of political economy whose occupants, in their inaugural lectures, would insist on the practical utility of their subject and plead for a wider recognition of that fact. But, for the most part, the duties were light. In this country at least, the statutory obligations seldom required full-time residence or extensive teaching. While in the world of affairs there was much discussion of economic questions, often of high quality (higher, I should say, than the quality of such discussion at the present day), in the universities political economy, as it was then called, was a mere adjunct to moral philosophy, a matter of subsidiary

questions to be taken in Greats or the History School, without any pretence of thoroughness or indeed severe requirements as regards analytical or statistical competence. It was not until the time of Alfred Marshall at Cambridge and the foundation of the School of Economics in London that the study of the subject can be said to have been put on a serious basis, comparable in extent and severity with other important branches of learning.

Development since that time has been spectacular. At the beginning of the century there were perhaps six active chairs in the country, with hardly any further teaching posts or specialised fellowships to support them; the yearly output of trained economists (by which I mean graduates with good honours degrees) can hardly have been more than a dozen. At the present day there are 26 chairs, and other teaching posts of one kind or another amounting to something like 100; while the yearly output of graduates with good qualifications must run into three figures. In the School of Economics alone—which of course does many other things besides train economic specialists—there are at present over three hundred students preparing themselves for one or other of the economics options in the final examinations.

I do not think that this development is to be attributed only to the merits of modern economics as an intellectual training. With reserves which will become apparent as the argument proceeds, I should be prepared to maintain that in fact these merits are quite considerable; when studied in appropriate conjunction with certain other subjects, there appears to be something very congenial to all-round intellectual development in the blend of theory and fact, intuitive imagination and practical judgment, which characterises what Keynes once called "this most agreeable branch of moral science"; and some, at least, of its improved status in the hierarchy of university subjects is due to recognition of this fact. But clearly this is not the whole explanation; indeed, it is probably not the larger part of it. There are many subjects of like educational value where there has been no comparable educational expansion; and it is certainly not to be thought that, had the driving force been only considerations of pedagogic efficiency, the expansion here would have been of anything like its actual magnitude. No, the main driving force has been external rather than internal. For good reasons or bad, there has arisen a strong demand for trained economists and the services they can render; and this demand has manifested itself, not only in an increasing call for the occasional services of university economists, but also in the establishment, in private business, in journalism, in central and local government, of positions where men and women with a university training in economics may hope to use their knowledge with advantage. It is not my intention here to survey this field in any detail. But I think we may note, as symptomatic of a trend which has become general, the establishment, within the charmed circle of the higher

grades of the Civil Service, of the special designations of economic assistant, economic adviser, chief economic adviser and the like.

Why has this come about? It would be agreeable to believe that it was entirely due to appreciation of our achievements: that, without anything else happening, the excellence of our analysis and the correctness of our practical judgments had so impressed themselves on the public mind that eventually we had been accorded the recognition which was always our due. As I shall argue later, I am not prepared entirely to dismiss this hypothesis; I think it may fit some of the facts. But we should surely be very unworldly if we were to believe that it was the whole explanation. The world has not stood still while our profession has expanded. The development of interest in economics has not taken place in a setting of Victorian tranquillity. There are obvious features of contemporary history which go far to explain why, quite apart from the question of their merits, our services are in greater demand.

In this connection, we may note two influences. First comes that stream of tendencies in public policy which, with Dicey, we may label collectivism. Can there be any doubt that it is the extension of state activity in the economic sphere which is responsible for much of the increase of public interest in economics? I am far from saying that where the tendencies of policy are otherwise—in the so-called *laissez-faire* system—the explanation of economic phenomena is at all an easy matter; very much the contrary indeed. But while, in such a system, for the economist such matters may be of absorbing interest, for the world at large it is otherwise. The business man is not likely to think that very much depends upon a knowledge of economics. The civil servant and the politician, although more intimately affected, are very likely to feel that, for all ordinary affairs at any rate, rule of thumb or intuition will see them through. Contrast now a situation where the functions of the state are extensive and continually changing. The business man finds his activities limited and conditioned by rules and regulations whose *rationale* he does not necessarily understand and whose repercussions he cannot easily foresee. The civil servant and the politician find themselves confronted by tasks where mere rule of thumb or intuitions are helpless, or at least liable to extensive and conspicuous error. Small wonder that, in such circumstances, there is a call for the services of those who have some technical pretensions to furnish advice and assistance in these matters.

Beyond this there is a still deeper tendency, springing from the disturbed circumstances of our times. Judged by all civilised standards, this is an atrocious century. Two great wars and their accompanying upheavals have brought the culture of the west, the only culture of hope and improvement, nearer to the verge of ultimate dissolution than at any time since the collapse of the Roman Empire. It is true that we have improved anæsthetics and that our knowledge of industrial

technique advances by leaps and bounds. But truth and tolerance have declined and the decent order of the world is broken. I suppose that, in the last fifty years, more men have been killed or condemned to forced labour in concentration camps than during any other such period in history—and that, not only in the inadvertent course of brute warfare, but, deliberately and of set intention, in the interest of half-baked creeds, too silly for words, flaunting the labels of pseudo-scientific justification. I do not think we are as aware of these things as we should be; perhaps we have supped so full with horrors that our palates have become insensitive. But even in our numbed reactions, we know that something is wrong. We are anxious about the world. We do not know where we are going. And, in their anxiety, men turn to anything which they think will provide an explanation and a possible solution. Some, at least, of the increased interest in our subject is to be attributed to this attitude. Somehow, some day, it is hoped, we shall bring to light the magic word, the open sesame, that, in a trice, will bring order out of present confusions and give meaning and direction to human effort.

II

Now there are few things more difficult than to see ourselves in proper perspective: there are difficulties of optics and there are difficulties of interest. Yet if we are to answer the questions, to what extent we respond to these high expectations and to what extent we are capable of so doing, it is just this thing that we must try to do. Let us first enquire concerning the standard of present performance.

Here, if we are candid, we must surely admit that there is no strong ground for complacency. It is quite true that the extension of teaching posts and facilities for research has been accompanied, as was to be expected, by a vast increase of scientific output. If we compare the position now with the position, say, at the time of the foundation of the Royal Economic Society, we see a difference of degree so great as to be almost a difference in kind. Then there were less than ten scientific journals in the world whose contents were noted in the summary at the end of the *Economic Journal*; now there are at least fifty. Then the volume of important books in our field appearing yearly in the leading languages ran into, perhaps, two dozen; now it runs into several hundreds. Yet with all this increase of counsel, who of us can be really satisfied with the present state of our knowledge? Who is there who does not feel the most profound sense of inadequacy, of insufficient knowledge of fact and imperfect apparatus of analysis, when faced even with the simpler problems of the day? Indeed, I will go even further and ask who is there who is really complacent about the rate at which knowledge advances? For myself, I admit that when I turn back to the works of an earlier generation, in

particular when I peruse the writings of Alfred Marshall, when I regard his superb analytical insight, his wide range of information and, above all, his strong sense of proportion and relevance, I am often tempted to ask what right have we to regard ourselves as superior and further along the road?

Yet it is possible to be too despondent. I do not doubt that there is some progress. If it be true—and there is much in the contention—that a great deal of what we have regarded as most novel in recent years is, in fact, “all in Marshall”—as at one time they used to say in Cambridge—it is also true that it takes a great deal of perceiving and that it is something to have dragged it out into the light of day. The re-examination of fundamentals in the central core of economic analysis, which has been going on ceaselessly since there were enough professional economists to provide a forum for debate, has doubtless involved much superfluous acrobatics and many mere disputes about words. But in the end it has produced a certain unity of technique and a common understanding. Despite the sound and fury of controversy at the frontiers of knowledge—always a healthy sign—it is safe to say that at the present time, wherever a man begins his studies, provided that there is reasonable competence on the part of his teachers, he acquires a technique similar to what he would have attained elsewhere; and, if he shifts his habitation to other parts of the civilised world, he is able to talk a common language with those with whom he comes in contact. To those who can remember conditions even twenty-five years ago, this represents considerable progress.

In fact I am prepared to make the claim a little higher. There are branches of the subject where we have definitely passed beyond the stage of consolidation of the intuitions and discoveries of our predecessors. I am not clear that this is so in the much discussed theory of imperfect or monopolistic competition; for all the proliferation of diagrams in recent literature, I doubt whether, analytically, we have advanced very far beyond Marshall's few lines of algebra; and I suspect that, in practical judgment and sense of proportion, we are often some way behind. But I am less doubtful about the general theory of money and output. I know that this is a part of the field where there still persist acute differences of opinion on vitally important questions. I know that the history of thought in this connection has been marked from time to time by the most extraordinary jubilation at the rediscovery of the well-known. I know, too, how much of recent development can be discerned, dimly foreshadowed, in the literature of the past. But I would maintain that the man who would argue that the work of the last fifty years, the work of Stockholm, of Cambridge and of Vienna—to say nothing of a host of devoted workers elsewhere—has added nothing to knowledge, is suffering from a very bad kind of melancholia. I can think of few economists who are satisfied with

the present state of this branch of theory. But I think it would be hard to contend that at least we do not know better than we did the questions which we have to ask in this connection and the nature of the problems which are involved.

My task to-day, however, is not a survey of modern economic theory, but rather to appraise our present capacity for practical usefulness in the world. And here, within limits about which I shall be talking in a minute, I think that the verdict may be somewhat more favourable. The deficiencies of our knowledge are indeed lamentable and must continually be a source of embarrassment. But there are certain bedrock fundamentals—or perhaps I should say certain basic habits of mind involved in our training—which I venture to think have considerable practical utility. I have not always thought this way. Before the war I should always have been disposed to claim speculative value for the principles of economics: I should have argued, that is to say, that general economics was an almost indispensable preliminary to the higher flights of social philosophy and to general reflection on problems of policy. But where more practical claims were concerned I should have been disposed to be more cautious. Edwin Cannan would never claim more than that no student of the School of Economics had ever ended his days in a workhouse. I am not sure that I should have pitched the claim as low as that. I should always have argued that it was a good thing for ministers to know a little economics, and that, powerful as was the general intelligence of the higher branches of the Civil Service, a certain contact with the subject would not be without its uses. But I should have been cautious in making very positive claims. The propositions of which we are certain seem so trite, the less obvious inferences are still so much a matter of dubiety, that I would not have pushed far the claim for the practical utility of economists in the day-to-day conduct of affairs. To-day I think somewhat differently. Experience during the war has convinced me that, provided that he is not headstrong and superior and is willing to learn the necessary conditions of his job, the trained economist has a substantial contribution to make in this sphere—and that, not so much on the strength of his more esoteric learning, but rather on the strength of his grasp of the more elementary platitudes of the subject.

It is here, I think, that is to be found the core of sense in the plea that is often made for a simpler economics. I confess that I have little use for the demand that our books and our papers should all be intelligible to members of the general public. Doubtless we should always be as intelligible as we can; there is much room for improvement in this respect. But I know no other branch of science or learning where a demand for complete intelligibility to laymen would be regarded as tolerable; and I see no special reasons why it should be tolerated by us. Nor have I very much sympathy with the view, sometimes expressed within the profession, that

we should discourage interest in the remote and abstract and confine our speculations to problems which have a direct and obvious bearing on practice. That is not the way knowledge, even practical knowledge, advances; and it is not the way to discipline high-spirited and intelligent young men and women anxious to follow the thought where it leads them. But I do think that it is important that we should not undervalue the simpler truths of the subject; they may seem trite and obvious to us, but they are not necessarily so to the rest of the world. If you take, for instance, any of the simplest propositions: that value depends on number as well as class—the basis of the marginal analysis: that you cannot have your cake and eat it—the so-called opportunity cost principle: that the money which is paid over the counter is received by somebody on the other side—the essence of the aggregate equations: if you take the consequences which flow from such invincible truisms as these, it is my experience at least, even among highly educated people, that they are by no means obvious. Indeed, I have sometimes noted that, in their practical applications, they not infrequently appeared to have all the bewildering and irritating properties of new truth.

But now, some of you may ask, is not the process of institutional change likely to alter all this? Is it not probable that a body of economic principle developed in the setting of a comparatively liberal society will find itself out of date and inapplicable in the more planned systems to which some societies appear to be moving? Will it not be necessary for the economist of the future to arm himself with completely new principles of analysis? I have already observed, in one or two quarters, apprehensions (or pleasurable anticipations) of this nature.

In fact, I am inclined to think that such a view has little grounds in experience. I can quite believe that, in completely centralised despotisms, where decisions regarding policy are the result of the chance whim of a dictator or small dictatorial clique, acting without any regard for the spontaneous wishes of the people, there must be singularly little room for economic analysis as we know it; in such a society, for anyone wishing to forecast or to influence the march of events, a short course of psychiatry would doubtless be preferable. But in the more mixed societies in which we live or are likely to live, this does not seem to be so. At any rate, such little observation as I have been able to make suggests that it is in just such a *milieu* that many of our fundamental principles attain their maximum utility. The fear (or the hope) that this may be otherwise rests clearly on misapprehension of their scope and significance. It is just not true that the basic criteria of economy are applicable only to a competitive society. It is not true that the general requirements of financial equilibrium are inapplicable to a mixed system.

Of one thing at least I am certain: whatever we may think of the present state of economic knowledge, whatever interpretation

we may put upon the fairly well attested fact that in certain circumstances it has proved to have practical utility, the nature of contemporary problems is such that they are not going to be solved satisfactorily without a good deal of economic reasoning. I am far from arguing that the root of all our troubles is economic—there will be more about that to be said almost immediately—but I am arguing that economic affairs are now in such a high state of confusion and upset that it must be an accident of unprecedented good fortune, if without foresight and understanding they come into anything like order again. Gone are the days when the hunch of a political leader or the brilliant improvisations of some amateur adviser might be trusted to manage the situation. In a world from which the great men have gone—or almost gone—we do indeed need leadership. But in the absence of an ordered view, of a systematic technique of analysis, confronted with the kind of economic problem which is characteristic of affairs to-day, the best leader in the world must be at a loss—a captain on the bridge in the storm without telescope or compass. Nor can we deceive ourselves that these are cases where “the instinct of the race” or “the good sense of the common people” can be trusted to see us through. What does the instinct of the race or the good sense of the common people know of the terms of trade, of overvalued exchanges, of the inflationary gap and similar matters? Yet it is upon knowledge of just such things as these that economic survival or disaster may depend. It is a big responsibility for professional economists.

III

But economic knowledge has its limits. There are questions to which economics gives no answer, problems to which its technique is inapplicable. And since at your age—I address myself to students of the School—you are much more likely to claim too much than too little for your subject, I deem it not the least important of the tasks I have taken upon myself this afternoon to devote some little time to explaining what these limits are, and what consequences follow from their recognition for your training and conduct as economists.

In the first place, I should like to assert quite baldly that not all the problems of the twentieth century are capable of what is called an economic solution. The most formidable troop of economic advisers would not save us from all our troubles, even if its advice were always right and always acted upon—which are pretty large assumptions. The great problems of living together on this planet are not all reducible to problems of command over the services of the factors of production—important though such problems may be. Nothing in history, nothing in our knowledge of ourselves and our neighbours, affords any justification for the belief that if we all had the equivalent in

real terms of, say, £2,500 a year, we should all live happily ever after. I do not wish to breathe a word against the desirability of improving both production and distribution; it is a significant element in the tradition of the West that, unlike the more ascetic traditions, it attaches importance to this. But when such improvement is assumed to be the sure solvent of all national and international difficulties, then I say that something has gone gravely wrong with our general sense of proportion. Such an overvaluation of the economic can only be yet another sign of the general sickness of the age.

At this point I can anticipate an objection. "We quite agree", some of you may say, "that there are problems other than economic and that the claim for economic policy as a cure-all is an exaggeration. But we submit, nevertheless, that these other problems would be easier to handle, were the economic problem (about which we think we have some suggestions) in a better way towards solution. First let us solve the economic problems; it will be time enough to deal with the rest when that is done". To which I reply that I believe that you deceive yourselves. Of course I agree that, were economic difficulties less acute, we should have more time and energy for tackling other problems, and the outlook would be much improved. I should not continue to be an economist did I not myself entertain that hope. But I say that, if you allow yourselves to infer from that that we can safely concentrate on the economic problem to the neglect of other matters, you deceive yourselves and run grave danger of ill-conceived policies. Take, for instance, the grand question of war and peace. It is abundantly clear that, in independent national economic policies, there are many causes of international friction whose removal is earnestly to be desired. It is probably true also that some at least of the dangers of international conflict would be lessened were there a diminution of the inequality of economic opportunities. But who but grown-up babies—of whom, unfortunately, there are plenty about—can really believe that the preservation of peace can be secured by measures operating merely in the economic sphere? Who really believes that the peace can be kept without a police force or a proper balance of power?

Next, I want to assert that, just as you can overdo the claim for economic solutions, so you can overdo the claim for economic interpretations. This point has an obvious connection with the first, but its philosophic implications lie deeper; large issues of doctrine are involved and I must guard against misunderstanding. I am very willing to agree that for a long time there was an undervaluation of the rôle of economic factors. Historians, interpreting the great vicissitudes of society in terms solely of the conflicts of kings and princes or the influence of intellectual conceptions, omitted some of the most powerful forces operative and presented a picture which was often seriously misleading. Political scientists, analysing the balance of forces in the body politic in terms which omitted the structure

of property and contract, ran the risk of imaginary constructions. I can think of no branch of the study of society, from legal theory to the history of the arts, which does not run the risk of superficiality or at least incompleteness, if it neglects the economic factor. But in our day, if I am not mistaken, the danger lies exactly in the opposite direction. In the century of the coffeehouse intellectuals everything must be a hundred per cent. In all sorts of connections, we are witnessing an overvaluation of the economic which is liable to lead to interpretations no less myopic and ill-proportioned, no less likely to confuse our understanding of the complex springs of action, than any which tended to ignore it. I confess that when I see the art of Cézanne labelled as a characteristic manifestation of "the period of heavy industry" or hear the paranoid hatreds of the Nazis explained solely in terms of the instability of capitalism, I almost despair of the human intellect. Nor can I regard as anything but morally deplorable the prevalent kind of dialectical thimble-rigging which consists of protestation, when exposed, that no hundred per cent. interpretation was ever intended, while continuing to invoke, for propagandist purposes, the stylistic *élan* and the emotional simplification which come only from just such a claim. The world is a very complicated affair. To understand it at all we must simplify. But woe betide us if we simplify to such an extent that essential ingredients are left out.

But even if we avoid the *Weltanschauung* of the one-eyed, and apply economic analysis and economic interpretation only in spheres in which they are properly applicable, there are still significant limitations to the extent to which our technique, unaided by other knowledge, can yield results which are practically helpful.

I take it that it is now agreed that this technique does not in itself furnish guidance on ethical standards. This used to be thought to be a very startling paradox; economists who limited its logical scope in this sense were thought in some way to be letting down the side and themselves to be guilty of unethical behaviour. But at the present day, I think, we are all more or less agreed that the ultimate criteria of what is desirable or undesirable in economic affairs must necessarily come from outside. The propositions of economics tell us, or attempt to tell us, what will happen in different sets of circumstances. They cannot by themselves tell us whether what happens is to be regarded as good or bad. They can say *if* you regard certain things as desirable, then this policy is likely to get them and that policy will lead the other way. But the assumption of what is to be regarded as desirable, the norm, is something which is taken over from elsewhere, from philosophy or from politics.

But even when we have our norms (our social welfare functions as, at the moment, it is fashionable to call them), there are further limitations on our capacity to predict and advise, which it is necessary to recognise explicitly. I do not think that a knowledge of economics

by itself is a sufficient guide to the practicability of policies. You may devise a plan which, from the analytical point of view, is immune from criticism. But if it is administratively impracticable or if it runs strongly counter to the wishes or proclivities of the voters chiefly affected, it is not necessarily very helpful. Now the borderlines between economics on the one hand, and public administration and political psychology on the other, are not at all simple or clear-cut. Conceptually, they are on the same plane; they are not divided by the same kind of logical gulf as divides them all from ethics or social philosophy. In the course of the study of applied economics, a man may pick up incidentally much information relevant at once to economics proper, public administration and a knowledge of human nature in politics. But they are not the same thing. It is quite possible for a man to be a most brilliant analytical economist and yet to show the most childish ignorance both of administrative and political possibility.

But what does this mean as regards our duties and our training? Does recognition of the limitations of economics as a body of knowledge imply that, in this agitated world, we economists are to remain aloof, detached and indifferent, content to point out to bewildered men the inconsistencies of their various actions, but never taking part in the grand debate of what those actions should be. In insisting, as I have insisted, on the reality and importance of what necessarily lies outside economics, am I to be understood as exhorting you to a secluded and cloistered virtue, self-imprisoned within the logical limits of your subject?

If you say that—and I admit that you would not be the first to do so; at one time it was quite a popular indoor sport—then I must assure you, in all goodwill and friendly feeling, that you are, in fact, most profoundly mistaken. I say nothing against the attitude of specialisation and detachment; it is one of the glories of a free society that it allows such things to be. It is one of its advantages too; in the end the advancement of practical knowledge owes much to the remote and to the eccentric. Nevertheless, in my opinion, it would be a great pity if economists in the present age were to depart from the habits of their predecessors, and to refrain from participation in the discussions of what, to use the old term, may conveniently be described as questions of political economy. I think it would be regrettable if they refrained from discussions of the ultimate ends of society.

I think this for two reasons.

In the first place, I believe that their training gives some special aptitude for such subjects. Before we can seriously discuss what is obligatory, it is necessary to know what is possible: and, although there is no necessary link between the technique of economic analysis and the appraisal of ultimate ends, I think experience shows that those who have been adept in the one have not infrequently also been capable of helpful contributions to the other. Certainly, in the

past, the literature of social philosophy in this country would have been much the poorer if it had not been for Adam Smith and John Stuart Mill; and, in our own day, few have done more to illuminate the issues of the great debate than John Maynard Keynes, whose untimely death, in the service of the highest kind of economic statesmanship, still grieves the hearts of those who were privileged to know him.

Secondly, I ask, if we economists do not play some part in discussions of policy, can we really feel very happy about the contributions of those who will? I say nothing against the existence of professional politicians. I accept, as one of the less admirable, but ineradicable, facts of the world, Burke's demonstration of the necessity of parties. But I do not think we can afford to leave the higher ranges of the political problem entirely to the politicians. I cannot think of any time when this has really been desirable. But in our own day when, as it seems to me, the majority of politicians have their ears so close to the ground, or their heads stuffed so full with *clichés*, as to be almost entirely out of contact with reality, I think there is perhaps a special need for comment from outside. For myself—I pass no judgments on others—I do not believe in getting mixed up in party politics; I should find it too cramping to my particular conception of academic style. But I do believe that there is an important function, outside party, to be discharged by sincere and disinterested discussion of the leading questions of the day; and to this discussion, I submit, economists have it in their power to make a significant contribution.

But if they are to do this, they must transcend themselves as economists. If we are to throw helpful light on the great problems of our time, still more if, like Plato's philosophers, we are from time to time to serve our term of public service, we must be prepared to go beyond our subject. We must be prepared to study not merely economic principles and applied economics; we must be prepared also to study many other disciplines. We must study political philosophy. We must study public administration. We must study law. We must study history which, if it gives no rules for action, so much enlarges our conception of possibilities. I would say, too, that we must also study the masterpieces of imaginative literature, that priceless heritage in which the best experience and the best aspirations of the race receive imperishable expression; a man will learn more which is relevant to the study of society from the great dramatists and novelists than from a hundred textbooks on psychology—valuable as these may sometimes be.

But this brings me back to the community in which we live, whose foundation we meet to commemorate. I think that it is only fitting that I should end by pointing out that the true title of this School is the School of Economics *and* Political Science, and that Political Science, in this connection, is a term of art which covers a great variety of kindred subjects. It is the tradition of the great men who built

up its fame, of Halford Mackinder, of Leonard Hobhouse, of Edwin Cannan and of Graham Wallas—to mention only the names of the dead, that these disciplines should be pursued in the closest possible conjunction. I trust that we shall cherish this tradition, that we shall always remember that, while it is our duty to advance knowledge in our special subjects and to furnish students with special training, it is our duty, too, to try to see life steadily and to see it whole and to train good citizens who, in their various ways, may do something to preserve and advance those high values of the West which, in this century, are in such grave danger of decay from within and destruction from without.

November, 1948.

Mr. Harrod's Dynamic Theory¹

By J. R. HICKS

MR. HARROD's book may be regarded as falling into two parts. One of them (Chapters 1, 3 and 4) outlines a new "dynamic" theory of economic progress and of the trade cycle; the other (Chapters 2 and 5) is specially concerned with interest. There is, of course, some overlapping; but the two parts are fairly well separated. One could, I think, say a good deal about the part on interest without much reference to the other part; and one can certainly say a good deal about the dynamic theory without any reference to the part on interest. Personally, I find the dynamic theory a good deal more interesting. I can find quite enough to say about it to fill the space which could conveniently be allotted to me on this occasion; I propose, therefore, to take the drastic step of leaving the part on interest altogether on one side.

Dynamics, according to Mr. Harrod, is a study of "an economy in which rates of output are changing". This definition is contrasted with that given in my own *Value and Capital* — "that part of economic theory in which all quantities must be dated"—and also with that used by the econometricians, such as Frisch and Kalecki, which Mr. Harrod takes to be particularly concerned with the effects of lags. Certainly there is no need to fight over definitions; I have myself no desire to defend the *Value and Capital* definition for purposes outside its immediate context. It had convenience as a means of organising a particular discussion; I would claim no more for it. But I think that both the econometricians and myself have the right to enquire whether Mr. Harrod has paid sufficient regard to the aspects of a dynamic process to which we have drawn attention. In fact, he seems to be open to some criticism on both grounds. It is very awkward to analyse a dynamic process (in his sense) without paying more regard than he does to the question of dating; and once one begins to date, it is hardly possible to slide over the question of lags. But instead of arguing this matter in general terms, let us look at it in terms of the details of Mr. Harrod's theory.

The central feature of that theory is a certain equation² which (modifying Mr. Harrod's notation a little³) I will write in the form $gc = s$. s is saving, expressed as a proportion of income (or output); g is the rate of growth of output (increment of output expressed as a proportion of output); c is the ratio of investment to the increment

¹ *Towards a Dynamic Economics*, by R. F. Harrod. Macmillan. 1948. 7s. 6d.

² This equation first appeared in his "Essay in Dynamic Theory" (*Econ. J.*, 1939).

³ Mr. Harrod writes the equation $GC = s$. I have replaced his big letters by small ones because I prefer to keep big letters for the main economic quantities, such as Y , using small letters for their ratios.

of output. Those whose minds (like my own) find it difficult to think in terms of these ratios will prefer to multiply up by income or output (Y). gY is then identifiable as the increment of output during the period, which could be written dY/dt . The equation thus becomes

$$c \frac{dY}{dt} = sY. \quad \text{This is recognisable as our old friend, the equation of}$$

Saving and Investment. (Y , it should be understood, is measured in terms of goods, not in terms of money or of "wage-units".)

The reason why Mr. Harrod prefers to write a familiar equation in this unfamiliar form is that he is anxious to stress the dependence of investment on the rate of change of output—the "Relation" which other economists have called the "acceleration principle". In given conditions of technique, and with a given rate of interest, the ratio (c) between *ex-ante* investment and the change in income may perhaps be properly regarded as more or less constant. If this is so, and if the saving ratio s may also be regarded as constant, then

the fundamental equation $c \frac{dY}{dt} = sY$ can be treated as a differential

equation, and solved as such. The solution is $Y = Y_0 e^{gt}$, where Y_0 is the level of income at time zero, which must be supposed to be given, and g is now defined as s/c , where both s and c are now to be taken as given constants. The economic meaning of this solution is, of course, that the economy expands at a constant rate g .

The solution is got by assuming that the economy is all the time in a state of Keynesian equilibrium, with *ex-ante* investment equal to *ex-ante* saving. The path defined by the solution is therefore not the path which will actually be followed; it is the path which would be followed if the system remained continually in this sort of equilibrium. (Mr. Harrod calls it the "warranted" rate of growth.) And that means, as we shall see, very little more than that it is a *possible* path of development.

The use of the concept of equilibrium in such matters as this is very tricky. In the Keynesian system, we were first told that the savings-investment equation determined the level of output; then it became clear that it only determined the equilibrium level of output; the actual level, at any particular time, might depart from the equilibrium level. This was an important qualification, with many consequences not yet all of them fully appreciated; but it did not in itself seriously affect the usefulness of the Keynesian construction, because the Keynesian equilibrium is *stable*. If *ex-ante* saving exceeds *ex-ante* investment (under Keynesian or near-Keynesian assumptions) output will tend to fall, thus tending to restore equilibrium. And *vice versa*. Because there are these stabilising forces tending to hold the system to an equilibrium position (or, as we might say, more dynamically, to hold it on an equilibrium path), it is probable that divergences from a Keynesian equilibrium would be limited. Great

divergences must be short-lived. Thus, in so far as the Keynesian system is valid, it does not only explain "tendencies"; it does, at least in a rough sort of way, explain the facts. If it is valid, then it is a first approximation to what does actually happen. It has this property in virtue of its mathematical *stability*. The ordinary supply and demand theory for a single commodity has the same property for the same reason.

Mr. Harrod's equilibrium path—his "warranted rate of growth"—does not have this property. His system is mathematically unstable. A rise in the rate of saving (s) raises the warranted rate of growth (g), thus causing the equilibrium path to slope more steeply upwards. There is sense in this. With the demand for the use of savings coming from the increase in output, an increased supply of savings can only be absorbed if output increases more rapidly than before. But an increase in s will not cause the economy to move on to this new path. Just as in the Keynesian case a rise in s causes *ex-ante* saving to exceed *ex-ante* investment, and therefore tends to diminish output. But this means (under Mr. Harrod's assumptions) that the system tends at once to move away from its equilibrium rate of advance. Instead of expanding as it "ought" to do, it starts to contract.

Mr. Harrod is, of course, well aware of this instability; he draws a number of interesting conclusions from it, some of them, I think, very important conclusions. In a sense he welcomes the instability of his system, because he believes it to be an explanation of the tendency to fluctuation which exists in the real world. I think, as I shall proceed to show, that something of this sort may well have much to do with the tendency to fluctuation. But mathematical instability does not in itself elucidate fluctuation. A mathematically unstable system does not fluctuate; it just breaks down. The unstable position is one in which it will *not* tend to remain. That is all that the condition of mathematical instability tells us. But, on being barred from that position, what will it do? What path will it follow? Mere knowledge of the unstable position does not tell us.

Perhaps I may put my difficulty graphically. In Fig. 1 time is measured on the horizontal axis, and output on the vertical (the latter, as seems appropriate for these "growth" problems, being reckoned on a logarithmic scale). We begin with output OA at time zero. s and c being given, AA' is an equilibrium path. Suppose that this path is followed from A to B, but that at B the rate of saving (s) rises. The new equilibrium path will be such as BB'. But the rise in the rate of saving does not cause the economy to move along BB', or along anything like it. It has the opposite effect, causing a divergence to the other side of BA'. But about the course of that divergence and about its direction we learn practically nothing. In practice, with these strong centrifugal forces at work, we must suppose that we shall almost always be dealing with an economy which is somewhere or other on some such divergent path. So long

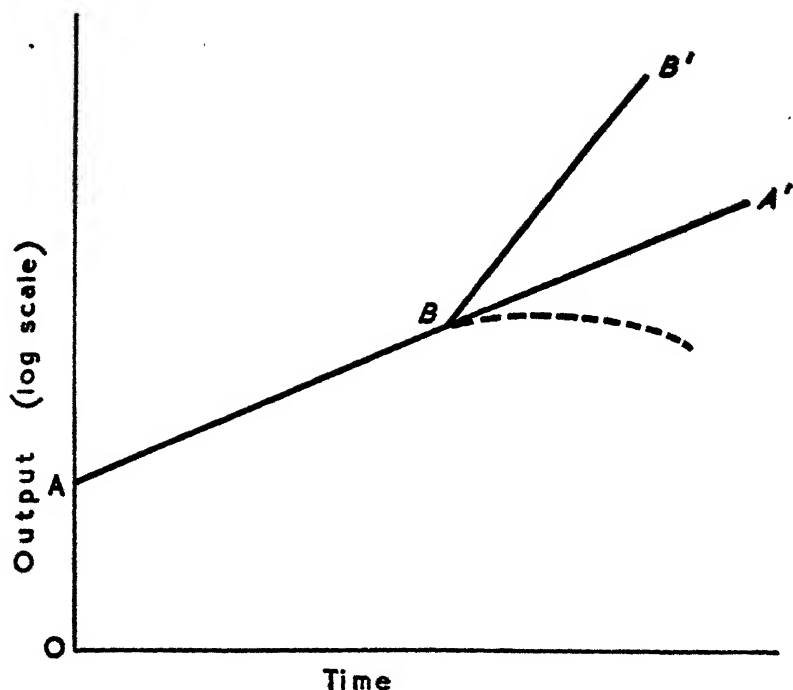


FIG. 1.

as the actual course of events on such a path is left undetermined, little use can be made of the theory. It is extraordinarily hard to use it either for the explanation of events, or for the prediction of what is likely to result from changes introduced by policy.

II

Faced with this difficulty, I have been tempted to go beyond the ordinary functions of a reviewer, and to enquire whether it is not possible, by some modification of Mr. Harrod's assumptions, to overcome the deficiency. The prize is a great one, for no one can study Mr. Harrod's work at all deeply without feeling that results of really great significance are just round the corner. What we have to do is to introduce just sufficient frictions to give the model mathematical stability, while not sacrificing the economic instability on which the substance of the argument depends. Can this be done?

It can be done as soon as we are allowed to make some use of lags. It is not generally realised (Mr. Harrod has certainly failed to realise it) that the great function of lags in this sort of dynamic theory is to impart just that measure of stability in the small—day-to-day

stability we might call it—as is required in order to make the movement of the system economically determinate. The lags are needed to hold the system to a given path. Mr. Harrod's theory, in the form he has given it, may be regarded as an indirect proof of this; because he will have no lags, his system explodes out of the time dimension. A dynamic system which is economically unstable, having a high propensity to fluctuate, cannot be efficiently studied unless some of the variables are lagged.

The easiest way to introduce lags is to work in terms of period analysis. Instead of treating time as continuous, we break it up into successive periods. The increment of output, which formerly appeared as dY/dt , will now appear as $Y_n - Y_{n-1}$. If there are no lags, the basic equation will then have to be written

$$c(Y_n - Y_{n-1}) = sY_n \dots\dots\dots(1)$$

the properties of which are substantially the same as those of Mr. Harrod's equation.¹

But as soon as the equation is written in this form, it does at once look decidedly queer. It is not really reasonable to assume that current investment should depend upon the increment of output *in the same period* (especially if periods are fairly short), and still less is it reasonable to assume that saving depends wholly upon the income of the same period. If we make the simplest possible lagging assumptions, we shall make investment depend upon the increment of income in the preceding period, and *consumption* upon the income of the preceding period. Current saving would then equal $Y_n - (1-s)Y_{n-1}$, so that the basic difference equation becomes

$$c(Y_{n-1} - Y_{n-2}) = Y_n - (1-s)Y_{n-1}$$

$$\text{or} \quad Y_n = (1-s+c)Y_{n-1} - cY_{n-2} \dots\dots\dots(2)$$

An equation of this kind is completely stable in the short run, for an increase in s reduces Y_n as it should. It can therefore be used to trace out a path which is such that an economy might possibly follow it.

The properties of such paths have been widely studied by mathematical economists.² Without going into detail, the following general conclusions may be mentioned. s and c being given, the path is completely determined when *two* initial positions (say Y_0 and Y_1) are given. Associated with any particular difference equation, there will be a "full equilibrium" position, which is such that it can be maintained indefinitely if it is once fully established. For very low values of c , the system approximates to the Keynesian type, and

¹ For its solution gives g (the proportional increment of output) equal to $s/(c-s)$. When s is small relatively to c , this is approximately the same as s/c .

² The best general description of this work, in non-mathematical language, is that by Hansen and Samuelson, in *Fiscal Policy and Business Cycles*, ch. 12. The best account in terms of fairly elementary mathematics is in A. Smithies, "Equilibrium Analysis and Process Analysis," *Econometrica*, 1942.

therefore moves steadily towards its full equilibrium. For very large values of c , the system tends away from full equilibrium. For intermediate values, it oscillates about the equilibrium position, the oscillations having a diminishing amplitude if c is less than 1, and an increasing amplitude if c is greater than 1. These are the results for the "second-order" equation, in which Y_n depends upon its *two* previous values. Similar, but mathematically much more complex, results appear to hold for difference equations of higher orders.

These results have attracted much attention because they seem to show that on quite simple assumptions a system may be constructed which has an automatic tendency to develop fluctuations. But the more one works with this structure, interesting as it is, the more one feels that its fluctuations are really too simple. They do not take account of some of the most elementary features of the real problem, which must surely find a place, and a central place, in a realistic theory. The mathematical economists do seem to have got hold of a part of the mechanism, but there are other things which they have left out which need to be brought in.

Now Mr. Harrod has got some of these other things. Although his system will not do in the small, it is better than theirs in the large. Is it impossible to build up a construction which will combine the merits of each?

III

The reader may have noticed that the lagged Harrod equation (2) would, in itself, be unsatisfactory for the purposes of the mathematical theory which we have just described. For if we seek to determine its full equilibrium level of output (which can always be determined from a difference equation by putting its various Y 's equal to one another) the answer must clearly come out as $Y=0$. This would not perhaps worry Mr. Harrod very much, because he is seeking to analyse a dynamic process, not an equilibrium situation. He does not want his system to settle down to "equilibrium".

But this means that the only solution of the difference equation in which he will be interested is that which occurs when c is relatively large, so that the system becomes "explosive". He is quite ready for his system to explode, provided that it does not explode too fast!

Nevertheless, since the system is to fluctuate, having down-tracks as well as up-tracks, it is important that the down-tracks should be checked somewhere. After all, slumps do have bottoms; something has to be introduced to stop the slump tending to an "equilibrium" with no output at all.

The only provision which Mr. Harrod makes to meet this need is the suggestion that some part of the investment of a period may be "long-range"—so that its "worthwhileness is not deemed to have

any relation to current requirements". I believe that this is the solution; but by treating this long-range investment as a fraction (presumably in principle a constant fraction) of current income, Mr. Harrod makes it impossible for it to give him any really substantial help. For whether the long-range investment depends upon Y_n , Y_{n-1} or Y_{n-2} , its introduction in this guise only affects the coefficients in the difference equation; and no juggling with the coefficients will prevent an equation of the form

$$\alpha Y_n + \beta Y_{n-1} + \gamma Y_{n-2} = 0$$

from having its equilibrium solution at zero output.

I believe that the readiest way out is to make the long-range investment depend, not upon current output, but upon the trend value of output. Evidently we must not treat long-range investment as a constant; for if we did so, though we should get a bottom to our slumps, we should lose the possibility of the upward trend, on the introduction of which into the model Mr. Harrod sets so much store. If, however, we make the assumption that the long-range investment depends, other things being equal, upon the natural growth of the economy (in productivity and perhaps population), we can get a bottom to our slumps and still retain the general progressive movement.

I would therefore suggest that we introduce a term $H(1+g)^n$ for the long-range investment, where H is a constant, and g (also a constant) is now Mr. Harrod's *natural* rate of growth. The introduction of this term certainly seems to be worth trying, and it proves to have the most interesting effects.

IV

On introducing this term, the difference equation (2) is transformed into

$$H(1+g)^n + c(Y_{n-1} - Y_{n-2}) = Y_n - (1-s)Y_{n-1} \dots\dots(3)$$

This equation is just a shade harder to handle than (2), but in fact by a simple device we can reduce it to an equivalent form.

The nearest thing to an equilibrium solution which is possible for this new equation is that which gives a steady advance at the *natural* rate. At such a steady advance, we should have $Y_n = E(1+g)^n$, where E is a constant. Substituting this trial solution in (3), we find

$$H(1+g)^n = E(1+g)^n - (1-s+c)E(1+g)^{n-1} + cE(1+g)^{n-2}$$

whence
$$E = \frac{H(1+g)^2}{(1+g)(s+g)-cg} \dots\dots\dots(4)$$

If, as we may properly assume, there is enough saving to look after the investment engendered in the steady advance, E will be positive.

Now write $Y_n = E(1+g)^n(1+y_n)$, so that y_n is the proportion by which actual income in the n th period exceeds (or, if y_n is negative,

falls short of) its *moving* equilibrium value. Substituting this value in (3) and using (4), we get

$$y_n - \frac{1-s+c}{1+g} y_{n-1} + \frac{c}{(1+g)^2} y_{n-2} = 0 \dots\dots\dots (5)$$

which is a simple difference equation of exactly the same type as (2). Its full equilibrium solution is at $y_n = 0$; but this no longer corresponds to zero output, but to the output which gives a steady advance.

What we have now found is that in our revised model, the proportional divergences from the moving equilibrium output will obey the same laws as were obeyed by the level of output itself in the simple model (2). Thus if $c/(1+g)^2$ is small, any displacement from the moving equilibrium will be followed by a steady movement back to the equilibrium. The moving equilibrium can then be regarded as stable. For larger values of c , we should get fluctuations about the moving equilibrium, which (as c increased) would first be damped, and would then become "explosive". Finally, for very large values of c , we should get a steady divergence from equilibrium as the result of any chance displacement.

Now it is, I think, these latter possibilities (relatively neglected by the econometrists) to which Mr. Harrod seeks to draw our attention. In order to study them conveniently, we may perhaps fix our attention upon one particular value of c , which makes the difference equation more than usually easy to handle. This is the minimum value which gives a steady divergence from equilibrium, without there being any fluctuations induced by the difference equation itself. It can be calculated to be $c = (1 + \sqrt{s})^2$. Substituting this value of c in (5), we get

$$y_n - 2\lambda y_{n-1} + \lambda^2 y_{n-2} = 0 \dots\dots\dots (6)$$

where $\lambda = (1 + \sqrt{s})/(1 + g)$. It is obviously safe to assume that $\lambda > 1$.

The solution of equation (6) is $(nA + B)\lambda^n$, where A and B are constants, depending on the initial positions. Thus if we start from a position which is such that A is positive, y will steadily increase (at least after a limited number of initial periods), and if we start from a position in which A is negative, y will steadily diminish (subject to the same proviso). We have therefore verified that we are dealing with an "explosive" equation; and we may be sure that for higher values of c we should get cases which would be still more explosive.

If we start from an equilibrium position, with $y_0 = 0$, we are bound to have $B = 0$, since by putting $n = 0$, we see that $y_0 = B$. A is determined by the value of y in period 1, being equal to y_1/λ when $B = 0$. Applying the general formula, we see that $y_n = n\lambda^{n-1}y_1$. Thus if we began with an upward displacement, so that y_1 was positive, y_n would increase from period to period in a ratio which at first exceeded λ , but gradually approached the limiting value λ as n became large.

V

Thus the difference equation tells us that if there chances to be an upward displacement from the equilibrium level, y will expand indefinitely. But y cannot expand indefinitely! For y , it will be remembered, is not the equilibrium level of output, which *can* expand indefinitely, given sufficient time; it is the proportion in which actual output exceeds the moving equilibrium output, and in that moving equilibrium the natural growth of the system has already been allowed for. It is therefore reasonable to assume that there is some maximum level which y cannot exceed—something which we may call the Full Employment level. Until that limit is reached, output can expand, both by natural growth and by a reduction in the percentage of unemployed resources. Once, however, the limit is reached, only natural growth is possible. And that means that y has reached its maximum value.

Let us write the full employment limit of y as f . Then if we have started, as before, from the moving equilibrium, and have encountered the full employment ceiling in the n th period after the initial divergence, we have the following situation. $y_{n-2} = (n-2)\lambda^{n-3}y_1$; $y_{n-1} = (n-1)\lambda^{n-2}y_1$; but y_n does not equal $n\lambda^{n-1}y_1$, but is kept down to the lower value f . What then happens to y_{n+1} ? In order to discover this, we have to go back to the difference equation (6), for there is no reason why it should not continue to hold.

$$y_{n+1} = 2\lambda f - \lambda^2 y_{n-1}$$

This may be greater or less than f , but if it is greater than f , it will have to be replaced by f , since f is its greatest possible value. We pass on to y_{n+2} . Applying the difference equation to this, we see that its maximum possible value is $2\lambda f - \lambda^2 f = f[1 - (\lambda - 1)^2]$. This is definitely less than f ; so that, *having reached its full employment limit, the system must begin to turn round again and output to go down, at least relatively to the trend.*

This conclusion is quite generally true. If we go back to the more general equation (5), we see that two successive y s which are equal and positive must be followed by a third which is lower than they are. This follows from the same inequality as gave us our fundamental condition that the (moving) equilibrium level of output should be positive.

What happens next? Effectively we are now starting from two successive y s which are both equal to the same positive magnitude f . We have to use the difference equation to work out the ensuing path. It is not difficult to show that successive y s will continue to fall, and that a point must be reached at which output does not merely fall relatively to its moving equilibrium, but falls absolutely.

When this happens, I think that we must reconsider our difference equation. If the system continued on the path determined by the same difference equation, output would ultimately fall to zero; our

model, having agreed with experience quite well up to this point, would therefore at this point begin to diverge sharply. Can we see why? The induced investment, on which so much has depended, is investment induced by an *expansion* in output; if we maintained the same difference equation on the downswing as on the upswing, we should be letting it go into reverse and becoming negative when output began to fall. This does not look right. It is true that there are some sorts of investment (investment in working capital) for which a construction of this sort might be plausible. Increases in output induce investment in working capital, of the sort which we have so far taken into account; and it is reasonable to suppose that reductions in output will cause entrepreneurs to find their working capital excessive, so that they will take steps to reduce their excessive stocks. So far as fixed capital is concerned, however, this is not possible. There does therefore seem to be a changed situation in the downswing from what there was in the upswing, and it is reasonable to allow for this change by changing the form of the difference equation. Let us say, as a first approximation, that when output turns absolutely downwards, the induced investment term $c(Y_{n-1} - Y_{n-2})$ simply drops out. It becomes zero, but does not become negative. Suppose this occurs, what happens?

The difference equation now takes the form

$$H(1+g)^n = Y_n - (1-s)Y_{n-1} \dots\dots\dots(7)$$

instead of the form expressed in equation (3). This is a much easier equation to handle than equation (3), but it will be convenient to set out its solution in a similar form. It will have a similar moving equilibrium, which we may write $L(1+g)^n$, and the value of the constant L can be determined by a similar substitution. We get

$$H(1+g)^n = L(1+g)^n - (1-s)L(1+g)^{n-1}$$

or

$$L = \frac{1+g}{s+g} H \dots\dots\dots(8)$$

Comparing this with the expression previously got for E [(4) above], we see that L will always be less than E , so that the new moving equilibrium will always be lower than the old.

Now write $Y_n = L(1+g)^n(1+z_n)$, so that z_n is the proportion in which actual income exceeds the new (lower) moving equilibrium level. Substituting this in (7) and using (8) we get

$$z_n = \frac{1-s}{1+g} z_{n-1}$$

The coefficient $(1-s)/(1+g)$ is necessarily positive and less than unity. Starting, therefore, from a given value of z_0 , the successive z s get smaller and smaller, in geometrical progression. By what is essentially the Kahn convergent series, the system tends towards its lower moving equilibrium $L(1+g)^n$.

But it will not get there. For once z has fallen so far as to become less than a certain ratio (which, as can readily be verified, is the not particularly small ratio g/s), the fall in the proportion z by which actual output exceeds the lower moving equilibrium output becomes less than the rate at which that moving equilibrium is itself rising; and once this happens, actual output will begin to rise. The original difference equation should then come back into operation, and that will start a new expansion *relatively to the natural growth*.

The simplest way of proving that this must be so is the following. Suppose, for a moment, that there is no induced investment until the lower equilibrium has actually been reached. Then the system will start taking up successive positions which are actually on the lower equilibrium line. In these positions the y 's (measured, as before, from the upper equilibrium) are negative and equal. Now if y_0 and y_1 are both equal to $-a$, we shall have [by (6)] $y_2 = -2\lambda a + \lambda^2 a$, so that $y_2 - y_1 = (\lambda - 1)^2 a$, which is certainly positive. It can further be shown, by the usual methods, that $y_n - y_{n-1} = (n-1)\lambda^{n-2}(\lambda-1)^2$, which will always be positive. The same result can be shown to hold for the more general case, in which we assume a larger value for c .

Thus, if the system actually hits its lower equilibrium, it will then be bound to start an upward expansion. If induced investment appears before it has hit the lower equilibrium, that is simply a further expansionary influence. The output so generated will then be greater, for each period, than that which we have just calculated. The expansion is therefore demonstrated *a fortiori*.

VI

Our model is now complete; and by our algebraic method, we have shown its internal consistency. For further discussion, it will be convenient to have a graphical representation.

Fig. 2 represents the same variables as Fig. 1: time on the horizontal axis, and on the vertical the logarithm of output (or investment). Steady progress is therefore represented by a straight line which slopes upwards, and steady progress at the "natural rate of growth" by a straight line of given slope. There are four such lines which play a part in our model. First, there is the Full Employment line F. Secondly, there is the "upper equilibrium" line E; and thirdly there is the "lower equilibrium" line L. Finally, there is the "long-range investment" line H, the upward slope of which is responsible for the upward slopes of E and L. It should again be emphasised that output is being measured in real terms, so that F may slope upwards, on account of an upward trend in productivity, even if population is constant. H slopes upwards at the natural rate of growth, because, by assumption, it is geared to the trend. E and L slope upward because they depend on H.

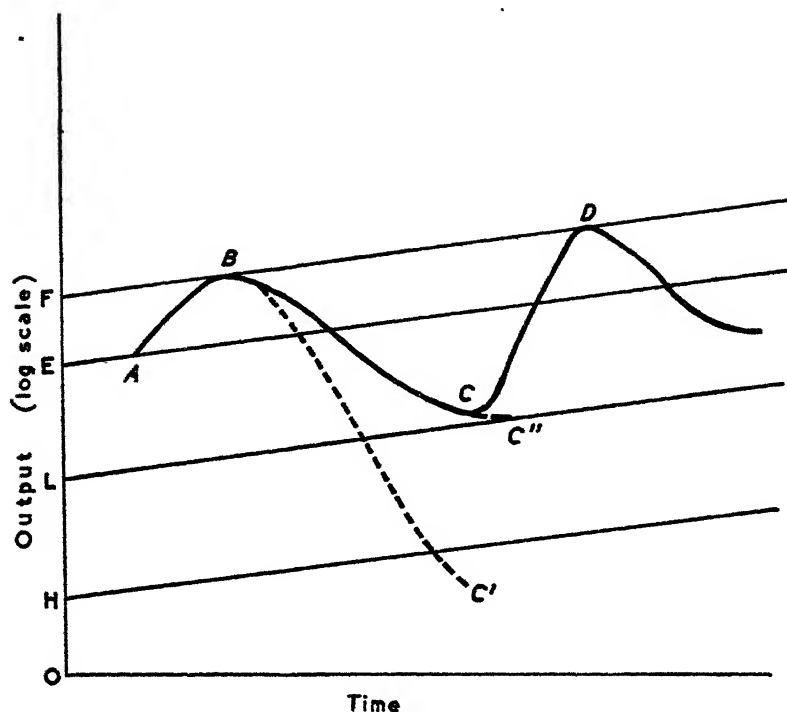


FIG. 2.

We know that L must lie above H , because of the Keynesian multiplier argument. We know that E must lie above L , because E includes the multiplier effect of induced investment (at the natural rate of growth of output) as well as the multiplier effect of the long-range investment. We shall assume for the present that E lies below F , though it should be noticed that we have not proved that it must do so.

The E -line is such that the economy could possibly advance along it in a smooth manner without fluctuation. But it will do so only if it is held to it in some manner, for any chance divergence in either direction will set up a movement away from the equilibrium E . Suppose that there is a chance divergence in an upward direction. Output then begins to grow at more than its natural rate of growth, and though there may be some tendency for the actual rate of growth to slow up after some time has elapsed, the actual rate will always exceed the natural rate (at least according to the value which we have given to c). And that means that the actual path AB must hit the ceiling F sooner or later. But when it hits the ceiling, the rate of increase in output is slowed up, and therefore (in the next period) induced investment is cut down. But the induced investment, which corresponds to an increase in output at the natural rate (which

is all that is allowed by the ceiling F) is only sufficient to engender a level of output which approximates to the E line, not one which goes along the F line. Output therefore tends to move back, on the course BC' , towards the E line. But as output moves back, the rate of increase in output falls below the natural rate, and in consequence actual output tends to fall below the E line. The track which would be generated, on this principle, after the "upper turning-point" B had been passed, would plunge downwards indefinitely, tending towards an output of zero. I show it on the diagram by the dotted line BC' .

It was, however, at this point that we felt it necessary to introduce our second complication. A downward movement in actual output, when it becomes an absolute fall, not merely a fall relatively to the natural rate of growth, should not be thought of as causing induced investment to become negative (or at least as only doing so to a minor extent). The path BC' is therefore too pessimistic. If zero is the lowest point to which induced investment can fall, then on the down-track we have a situation in which the only investment occurring is that which is represented by H . And L is the equilibrium to which the system will tend when the only investment is that represented by H . The system will therefore move along a path BC'' , which is determined by the familiar multiplier theory of Keynes (or Kahn). This path will merge into the L line at a point C'' .

But since the L line is upward sloping, the path BC'' will have begun to turn upwards at a point C , which precedes C'' . At this point the "accelerator" comes back into gear. It must then bring about a positive induced investment, which will cause the actual path to diverge from CC'' in an upward direction. The rate of growth will then soon be in excess of the natural rate, and the path CD must therefore intersect the E line sooner or later. When it does so, it will still have a rate of growth in excess of the natural rate, and will therefore keep on rising. Finally, it must hit the F line, and when it does so, it is bound to turn down as before, for exactly the same reason as before.

There has thus been engendered a complete cycle, and a cycle which is completely self-perpetuating. It must turn down when it gets to the top, and when it approaches the bottom it must turn up. So long as the fundamental data remain unchanged, actual output must fluctuate between the limits L and F , and will do so indefinitely.

VII

Further, what has been accomplished is something more than the making of a special model, which happens to show a fluctuation, something like the observed sort, for certain values of its parameters. We have used special values for purposes of illustration, but the cycle which has been engendered does not depend on the special values chosen. All that is necessary is (1) that the relations between income

and consumption, on the one hand, and between investment and changes in income, on the other, should be such as to impart a rather strong tendency to instability in the level of output; (2) that the system should have an upward trend, and that some investment should be geared to that upward trend; (3) that the supply of resources, at any given time, should not be inexhaustible; (4) that falls in output should not induce disinvestment, in the way that rises in output induce investment, except (possibly) to a minor extent. These conditions are certainly not at all restrictive; all of them (except possibly the first) are things which we should naturally expect to be true. And the first condition, though its validity is certainly far from self-evident, is not intrinsically unpalatable. We do therefore seem to have shown that a cycle, which is strongly reminiscent of that which we experience, can be explained on the basis of a minimum number of hypotheses, each of which is very reasonable in itself. It is hardly possible for a *theory* of the Cycle to do more than that.

Besides, from this point we can again go forward. The next thing to do should be to reconsider the very simple difference equation on which our formal analysis (though not the real essence of our argument) has been based. It is, as a matter of fact, most unlikely that the two relations (between income and consumption, and between investment and change in income) are as simple in form as we have assumed them to be. We have taken a simple form, in order to keep our main difference equation down to the second order; but there can be little doubt that the equation we thereby got is over-simplified, though it should be noticed that the mathematical difficulties accumulate very rapidly when we introduce additional complications in this direction. There is, however, one generalisation which can be made without incurring these mathematical difficulties. We can allow for the probability that a part of consumption will depend upon current income as well as a part on previous income; an amendment in this direction makes the system *more* liable to fluctuate.¹ This has a bearing on the weakest of the four assumptions listed in the previous paragraph. It will probably have been noticed that in order to get our model to work, we did apparently need a rather large value for the capital coefficient c ; it looked as if it had to be distinctly larger than unity.² So large a value for c is not altogether unpalatable (Mr. Harrod is evidently prepared to accept a value of this order of magnitude); nevertheless when we remember that "long-range" investment is being otherwise allowed for, a doubt must remain whether so large a value of c is realistic. It is therefore useful to notice that if only a part of consumption is lagged, we can manage

¹ We can also allow for the possibility that a part of consumption may be geared to the trend of income without introducing additional difficulties. The effect of this amendment would be to diminish the amplitude of fluctuations, but not to diminish the probability of their occurrence.

² When $c = 1$, it means that an increase in real output by £100 millions (at given prices) causes an increase in investment by £100 millions (at prices which correspond).

to work our model with much smaller values of c . The value of c can be appreciably less than unity, and we can still get the required instability in the level of output.

Such things evidently need much further enquiry; but the way to that enquiry is now open. It will then be of great importance to study the changes in the model which may occur through changes in the sizes of some of the parameters, and to enquire whether they have any correspondence with observed changes in the behaviour of the actual economy through various cycles. If it could be shown that there is such correspondence, the theory would receive striking confirmation. I am in fact inclined to think that some of this confirmation can be sighted without looking very far. One thing which clearly could happen would be that the value of c was not large enough for the upward swing (AB or CD in Fig. 2) to hit the Full Employment ceiling. If this were to happen, the boom would turn down before it hit the ceiling; but the rest of the cycle could apparently go on as before. Does not this look very like the case of the boom which "peters out"? Mr. Harrod has done some useful work on the factors determining the size of c ; by using his researches on this point, and concentrating on the effects of changes in his factors in this direction, it does look as if the theory we have been advancing should be capable of some indirect verification.

Again, it is clearly not realistic to assume that the "height" of the H line (the long-range investment) will, as we have drawn it, be constant in all circumstances. Such things as wars and their aftermaths (and maybe other disturbances too) must be thought of as causing "autonomous" fluctuations in long-range investment. The effects of such fluctuations could be analysed. A considerable upward hump in the H-line could, for instance, push the corresponding E above the Full Employment line. If this happened, there would be no tendency for output to turn down when it reached the Full Employment level. Let us consider the matter, for instance, in terms of equation (6). We saw that in a system which was "driven" by that equation, two successive y s which were both equal to f would be succeeded by a third which was equal to $f - (\lambda - 1)^2 f$; if f is positive, this must be smaller than f . But if f is negative, as in the case we are considering, the third y will be *larger* than f ; being above the Full Employment level, it will then have to be replaced by f . Thus the system can remain in Full Employment as long as the hump in the H-curve lasts.

This is itself a highly suggestive result; one further modification, which can be introduced into our structure, not only without damage but with benefit, makes it more suggestive still. It is not quite right to treat "Full Employment", as we have done hitherto, as a rigid barrier; it is better to regard it as a zone which, if penetrated, calls forth rapidly increasing resistances to the expansion of output, but in which some increase of output can, up to a point, still be attained. This modification makes no real difference to the structure of our

theory; the slowing-up of expansion, due to the resistances, will still cause output to turn downwards once the zone is fairly penetrated, so long as the equilibrium level E is lower than the level at which the resistances begin. But if we allow that the resistances begin (as I think they do) at a level of output which is short of that where there is a tendency to definite inflation, we get another important result. We can see why it is that the ordinary commercial boom, carried by induced investment, is most unlikely to penetrate through the resisting medium so far as to cause any serious inflation; the resistances will cause it to turn downwards before it gets to that point. It is only when there is a big hump in the H -curve, pushing the equilibrium level well into the Full Employment zone, that the system can have enough "steam" in it to carry it to the inflationary point. The ordinary commercial boom is unlikely to do that. Our theory therefore affords a ready explanation of another well-established practical generalisation, which was previously rather out of touch with theory; it shows why it is that inflation is so liable to occur in conditions of war and post-war reconstruction, but rarely (if ever) results from a purely commercial boom.

I should, however, not like it to be inferred from these arguments that a continued boosting of the H -curve, so as to keep E above F , is a desirable solution of the cycle problem. For what is bound to happen, in this "over-employment" situation, is that induced investment is kept steadily below its normal relation to current output. And since, on the whole, the induced investment is *needed* in order to enable output to be produced efficiently, its repression (certainly its continued repression) is bound to have adverse effects on the efficiency of production. Thus even if the danger of open inflation can be somehow averted, this "solution" can cure the cycle only at the price of a severe loss in efficiency. The true object of policy should be to keep the equilibrium line as near as possible to the Full Employment mark, but not to push beyond it. If this is done, it will also be necessary to have measures at hand to correct the downward divergences from equilibrium, which are then liable to occur. This policy is much harder than its alternative; but if it can be achieved, its results will be infinitely preferable.

The German Currency Reform and the Revival of the German Economy

By F. A. Lutz

AFTER the collapse of Germany in 1945 the German economy rapidly deteriorated into a barter economy in which money served neither as a unit of account, nor as a means of payment (except for the purchase of the meagre official rations when they were obtainable), nor as a store of value. The period which ended with the currency reform of June 20th, 1948, offers to the economist a unique illustration of the situation which is so often described in text book discussions leading up to the analysis of the advantages of money: individuals and business firms acquired most of the commodities they wanted by exchange against commodities they had to offer, and a whole series of exchanges were sometimes necessary to obtain the desired commodity. Every firm had several specialists, called "compensators", on its staff. If, for example, cardboard for packing was needed, the compensator might be obliged to barter the plant's own products for typewriters, the typewriters for shoes, and the shoes for cardboard. All this was not only illegal but involved tremendous costs. In one case known to the present writer five long trips by a compensator were required to obtain a case of special varnish, whereas formerly a postcard dropped into the post box would have been sufficient.

Workers and employees also insisted on being paid partly in kind, and bartered the commodities they received against others which they needed. Most people had no inducement to earn more money than was required to buy the rations at prices which were, on the whole, still fixed at the pre-war level. It was profitable for a man to be absent one or two days a week from his job if he could use the time to cultivate his own garden, to forage in the countryside for food, or to operate in the black market. Accurate accounting was impossible for firms as well as for consumers, because there was no market in which a common price for a commodity could establish itself; each purchase carried out in the black market (whether made by way of the transfer of money or by way of barter) was made at a unique price which was determined by the bargaining power of the individuals concerned, a price which might easily be twice as high as the price at which some other similar transaction was taking place somewhere else at the same moment. The economy was "organised" along lines such that the self-interest of individuals and firms was strictly opposed to the common interest. Working at a regular job was the least profitable occupation, and mere survival necessitated breaches of the law. By the middle of 1948 the economy had reached a state of paralysis resulting in near-starvation for a large part of the population.

It is against this background that the currency reform of June 20th, 1948, has to be considered.

I

THE TECHNIQUE OF THE REFORM

Outside Germany it is widely believed that the main point of the German currency reform was the exchange of ten Reichsmark (RM) for one Deutsche Mark (DM), and the scaling down of all claims in the same ratio, except for claims against the Reich, which were cancelled. Actually the procedure was more complicated, and when subsequent developments are taken into account, it appears that the ratio of 10 : 1 is definitely wrong. It is true that on the first day of the reform everybody had to pay his RM notes into an account, and that he was promised DM to the extent of 10 per cent. of the sum constituted by the RM notes he had paid in *plus* his RM bank balance. He could dispose of 50 per cent. of his new DM bank balance (the so-called "free account") after approval by the tax authorities, whereas the other 50 per cent. were blocked. Even at this stage, however, the ratio of 10 : 1 did not apply to everybody. Each person received 60 DM (40 DM immediately and 20 DM later) as "Kopfgeld" (*per capita* allocation) in new bank notes, in exchange for the same number of RM notes. A family with three children, which in this way received 300 DM "Kopfgeld", and had, say, a bank balance of 2,700 RM after paying in its RM notes in excess of those which were used to obtain the "Kopfgeld", obtained 300 DM in exchange for 3,000 RM, and the ratio of 10 : 1 applied. But if the family had no bank balance, it received 300 DM for 300 RM, i.e., the ratio was 1 : 1. On October 1st it was further decided that of the 50 per cent. of the DM bank balances which were originally blocked, 70 per cent. were to be cancelled, 20 per cent. were to be released, and 10 per cent. were to be used later for investment in medium and long-term securities.

The cancellation of 70 per cent. of the blocked accounts reduced the ratio from 10 : 1 to 10 : 0.6 or 16 : 1. This cancellation of DM was definitely a psychological error. The Germans were quite willing to have the RM cancelled, but the fact that, a few months after the reform, the occupying powers should cancel part of the newly created DM seriously undermined their confidence in the new currency. Moreover, the change in the ratio did not apply to private claims, so that the holders of money were penalised as compared with the holders of private claims, and this accentuated the belief of the man in the street that holding cash was the least advantageous thing to do.

Not only individuals but also firms had to be provided with DM on the day of the currency reform if they were to be able to pay their workers, and to transact business, in the week following the reform. Firms were entitled to 60 DM per employee; against these 60 DM 600 RM were cancelled; but again, if a firm did not have the necessary RM balance it could obtain these funds at the ratio of 1 : 1. The

60 DM per employee were often not sufficient to meet the first week's wage payments, and, in many cases workers gave credit to the firms in that week by accepting less than their full wage. After the first week, wages could be paid either out of the receipts from sales to consumers, or out of the 50 per cent. of the new DM balances which were gradually released by the tax authorities, or out of funds borrowed from the banks.

Public bodies (the states, now called "Länder", and the municipalities), as well as the German Railway and German Post Office, also had to be provided with money until their receipts could catch up again with their expenditures. All RM balances held by public bodies were completely cancelled, and the public bodies obtained a gift of DM equal to their average monthly receipts between October 1st, 1947, and March 31st, 1948. As it became known beforehand that RM balances would be cancelled, the public bodies, whenever possible, refused to accept payments of taxes in RM in the weeks just preceding the reform; and the careful city administration, which had insisted on prompt payment of taxes and had kept liquid, was penalised as compared with the careless city administration which had large claims outstanding. The Railway and the Post Office also lost all their RM balances, and obtained a gift in DM to the extent of one half of their average monthly receipts over the period October 1st, 1947, to March 31st, 1948. The military governments of the three zones obtained DM to the extent of 770 millions.

The total volume of RM notes which were paid in during the first week of the reform amounted to RM 13.5 milliards, and a total of RM 109.8 milliards of bank balances were declared. It should be noted, however, that not all the RM notes outstanding were paid in, for fear that black market operations might be traced if an inordinately large volume of RM notes were delivered up.

The volume of DM which the currency reform created can be seen from the following table. (The figure for the "free accounts" is only approximate; they were only gradually released in a process that was roughly completed in January, 1949). This block of DM, which was not created by bank credit, we shall call the "fiduciary issue" of DM.

Table I: Volume of DM Created by Currency Reform.

| | Millions of DM |
|--|----------------|
| "Kopfgeld" | 2,850 |
| Initial dotation of the <i>Länder</i> and municipalities .. | 2,360 |
| Initial dotation of business, and of the Railway and Post Office | 810 |
| Military Governments | 770 |
| "Free accounts" (including the 20 per cent. released in October from the "blocked accounts") | 5,500 |
| TOTAL | <u>12,290</u> |

The technique of the currency reform cannot be fully understood without a knowledge of its effects on the banking system. In Germany there are now three layers of banks: the commercial banks, the central banks of the *Länder* (*Länderbanken*) and, on top of these, the *Bank Deutscher Länder*. This complicated system had already been introduced by the occupying powers, before the currency reform, in the desire to break up the monopoly of the Reichsbank and to create a kind of Federal Reserve System. But, what is not common to the Federal Reserve System, a super-central bank was created (the *Bank Deutscher Länder*) in which the central banks hold deposits and from which they can borrow. The central banks (*Länderbanken*) might just as well be abolished, and the commercial banks put in direct contact with the *Bank Deutscher Länder*. This middle layer of central banks does not perform any useful function which could not be performed by the *Bank Deutscher Länder* and the commercial banks. But the disappearance of the (superfluous) central banks would restore something like the old relations between commercial banks and the Reichsbank, and the aversion, particularly of the American authorities, to the monopoly of a single central bank, together with the federalistic ideology of the western powers, stood and stands in the way of such centralisation in the banking system, although one central bank would be both cheaper and more efficient than the present hypertrophy of central banks, and although the necessity of creating the *Bank Deutscher Länder* proves that centralisation cannot be avoided. It is pretty safe to predict that some day the *Länderbanken* will disappear again; but for the present they have to be included in our account.

We start with the commercial banks. A typical balance sheet of a commercial bank before the reform would have as its main items on the assets side: (1) liquid funds in the form of cash held on deposit with the *Landesbank*, cash in vault, and balances held with other banks; (2) loans of all kinds, a small item, since firms and individuals were so liquid that they rarely needed to borrow; (3) investments in the form of government securities, which were worthless; and (4) real assets such as buildings. The main items on the liabilities side were demand and time deposits, and the shareholders' equity. The only items to which a definite figure could be attached were liquid funds and loans on the assets side, and deposits on the liabilities side.

The currency reform replaced the RM deposits of private customers by DM deposits, first in the ratio of approximately 10:1, and, later, after the law of October 1st, 1948, in the ratio of 16:1. Deposits by other banks were, however, cancelled. On the assets side all liquid funds including balances with other banks were cancelled, and the banks were given 15 DM of reserve money for every 100 DM of their liabilities in respect of demand deposits, and 7.5 DM for every 100 DM of their liabilities in respect of time deposits (including savings deposits). This new reserve money was credited to the commercial banks in the

form of a deposit in the central bank of the *Land* in which they were situated. Commercial loans were reduced in the ratio of 10 : 1, and investments (claims against the Reich) were completely wiped out. Real assets were to be valued according to principles still to be determined. This procedure created a gap between assets and liabilities, the latter greatly exceeding the former. The gap was widened by the fact that banks were allowed to put into their balance sheets a figure for the proprietors' capital equal to 5 per cent. of their new demand and time deposits. In order to make the assets equal to the liabilities, the banks were given claims against the *Länder* (*Ausgleichsforderungen*) equal to the discrepancies between their assets and their liabilities *plus* capital, claims which bear interest at 3 per cent. per annum and are not marketable but can be used as collateral for borrowing from the *Länderbanken*.

The opening DM balance sheets of the central banks had to show on the liabilities side :

- (1) Deposits credited to the commercial banks (*see* above).
- (2) Deposits credited to the *Länder* and municipalities equal to the initial DM dotation of these public bodies.
- (3) Deposits credited to the public in DM to the extent of roughly one-tenth (later one-sixteenth) of the RM deposits which they previously held in the central banks.
- (4) Proprietors' capital; the RM capital required by law was replaced by DM capital in the ratio of 1 : 1.

On the assets side all liquid funds (cash and deposits held by the central banks with the *Bank Deutscher Länder*) in RM were cancelled, and the central banks were instead credited by the *Bank Deutscher Länder* with 30 DM reserve money against every 100 DM of the central banks' own deposit liabilities. The other main item on the assets side, shares in the capital of the *Bank Deutscher Länder* (even this feature having been taken over from the Federal Reserve System), could be carried at a DM value equivalent to the old RM value. Here, too, assets were smaller than liabilities, and the central banks could fill the gap with claims against the *Land* in which they were situated.

Finally, the *Bank Deutscher Länder*, which is the issuing authority for the new bank notes, had to carry in its opening balance sheet on the liabilities side :

- (1) The notes issued to the public ("Kopfgeld") and the notes issued to the firms (60 DM per employee).
- (2) Deposits credited to the central banks (*see* above).
- (3) Deposits credited to the Railway and Post Office.
- (4) Deposits credited to the military governments.
- (5) Legal capital at a DM figure equal to the previous RM figure. Its main assets consisted of foreign exchange, real assets such as buildings

and, again to fill the gap between assets and liabilities, claims against the combined British and American zones.¹

Within this general framework monetary policy can rely on two weapons, the discount rate and changes in the legal reserve requirements. The reserve requirements can be varied by the "Centralbankrat" (Central Bank Board) between 8 and 20 per cent. of demand deposits, and between 4 and 10 per cent. of time deposits. Legal reserve requirements are new for the German banking system, and the banks, which were previously accustomed to hold low cash reserves (always relying on being able to rediscount with the Reichsbank) have still to be educated to a system in which they are obliged, as part of the mechanism of monetary control, to hold a high percentage of their assets in the form of reserve money, a non-earning asset. Open market operations are not at present among the instruments of monetary control, since neither the *Länderbanken* nor the *Bank Deutscher Länder* possess marketable securities, nor are there any suitable securities in the hands of the commercial banks or the public.

To prevent inflation, the law established a fixed limit of DM 10 milliards for the note issue (a limit which, as subsequent developments showed, was too high), and restricted the volume of credit which the central banking system could give to the Bizone and to the *Länder*.

The currency reform has been criticised mainly from the point of view of social justice. Social justice would have required that all property, whether in the form of cash, of claims, or of real assets, should be treated equally. Instead, the owners of real assets were favoured as compared with the holders of private claims in the form of loans or securities,² and the latter were in turn favoured as compared with the owners of bank deposits, which were reduced in a larger proportion than private claims; among the owners of liquid funds those were favoured who had little cash, since they obtained the "Kopfgeld" at the ratio of 1 : 1, whereas those with "sufficient" cash (including RM bank balances) lost at the ratio of 16 : 1. Worst of all fared the holders of claims against the Reich which were completely wiped out.

The intention is that this injustice should be made good by the "Lastenausgleich" (equalisation of the war burden) which has still to be worked out. The "Lastenausgleich" is to be based on an assessment of all real assets, on the one hand, and an assessment of all losses due to bombing, expulsion from the east, reparation payments, and the currency reform, on the other. The present owners of real assets (houses, plant, inventories, etc.) would be burdened with mortgages assigned to those who have suffered loss. It is, however,

¹ Once this new system had begun to operate, rediscounts and advances appeared among the assets both of the central banks and of the *Bank Deutscher Länder*. The latter also carries the accounts into which importers pay for their imports and out of which exporters are paid.

² The owners of real estate have had their mortgages reduced in the ratio of 10 : 1; they continue, however, to pay interest on the full original amount of the mortgage, and nine-tenths of their payment goes to the *Land* in which the property is situated.

generally agreed that the plan is impossible to carry out. To establish the value of the remaining assets is difficult enough; to establish the losses is impossible. No data at all are available concerning the losses suffered by the refugees from the east, or concerning the losses due to bombing of personal belongings (furniture, valuables, etc.) in the west. And only quite arbitrary values can be placed on buildings, whether destroyed by bombing or still standing. Social justice is impossible to achieve under these circumstances.

The "Lastenausgleich" was supposed to be completed by the German authorities before the end of 1948, but up to the time of writing the necessary law has not been passed; the difficulties of assessing the value of lost property, and of valuing existing property, have proved so great that no agreement has yet been reached on the procedure to be followed. In addition there is no agreement as to whether the "Lastenausgleich" should be used to effect a new distribution of property or whether it should be based on the pre-war *status quo*.

A provisional "Lastenausgleich" has been worked out by the Germans providing for a capital levy of 2 per cent. on real estate of low value (up to DM 15,000) and 3 per cent. on real estate of higher values, a special payment of 4 per cent. on "necessary" inventories and of 15 per cent. on "excess" inventories, the receipts to be used for the relief of the destitute. But even this provisional solution has not yet become law. The provisions plainly show, however, the economic consequences which any "solution" of the "Lastenausgleich" is bound to involve. At a time when the German economy is in great need of new capital formation, the "Lastenausgleich" will cause capital consumption, i.e., the levy will prevent many firms from replacing their capital, while the money they pay out for the "Lastenausgleich" will be spent by its recipients on consumers' goods. As those who are destitute are morally entitled to relief, this cannot be helped. It would, however, have been wiser not to have aimed, through a final "Lastenausgleich", at full social justice, which is impossible to achieve, but instead to have written off war losses as in principle due to *force majeure*, to have made some independent provision for the really destitute in order to help them make a new start in life, and to have decided what had to be done towards this end simultaneously with the currency reform. As it is, the pending "Lastenausgleich" burdens all planning by firms and individuals with a heavy uncertainty factor; this fact exerted a marked influence on the course of events in the second half of 1948.

The currency reform was admittedly socially unjust, and will remain so no matter what form the "Lastenausgleich" takes; and, as it is difficult to see how this injustice could be avoided, there is not much point in criticising the reform too harshly on that account.

Leaving the problem of social justice aside, the reform can be criticised from a purely monetary point of view as having created

"too much money". The initial creation of DM amounted to about 5.9 milliards, not counting the free accounts which were gradually released, and not counting the 20 per cent. of the blocked accounts which were released in October, 1948. These releases continually increased the volume of money throughout the second half of the year until the "fiduciary issue" reached, as was pointed out above, something like DM 12.3 milliards by January, 1949. To this block of money, which was not created by bank credit to firms, we have to add the money that was so created. Since the free accounts of firms were released only gradually, many firms, even though their bank balances might have been sufficient to finance their operations had those balances been immediately available, were obliged to borrow from the banks. They needed to do so the more, the further their operations were removed from sales to the final consumers, i.e., the longer it took for the flow of money which was set going by the spending of the "Kopfgeld" and the free accounts by the consumers to reach them. Thus *pari passu* with the gradual increase in the free accounts, an expansion of bank credit occurred. For 112 representative banks, loans to customers rose from DM 104 millions at the beginning of July, 1948, to DM 1,787 millions at the end of the year; as the loans of the 112 banks constitute roughly between 35 and 40 per cent. of the loans of all banks, total bank loans by the end of the year must have amounted to DM 4.5 to 5 milliards.

At the time of the currency reform nobody could foretell how much money would be required to keep prices at approximately the level at which they were fixed at that time; indeed, there was no agreement as to whether the currency reform would have an inflationary effect on prices or whether it would have a deflationary effect. The majority of economists expected a deflationary pressure. In fact the opposite occurred. As the effect could not be predicted beforehand, it would have been wise to have made the "fiduciary issue" as small as possible (i.e., to have given smaller "Kopfquoten", and to have chosen a larger ratio of reduction for the RM), and to have let the bulk of the DM arise through borrowing from the banks in response to the expansion of production.

This would not in itself, of course, have been a safeguard against inflation; the old banking theory, according to which money which is created by discounting eligible paper can never produce a rise in the price level because the increase in the volume of money is always matched by a corresponding increase in the volume of goods, is admittedly untenable. But the procedure suggested would have given the central banks the power to stop the expansion of money through discount policy. As it was, they had in the first months after the reform almost no power to influence the volume of money. There was no means whereby they could have stopped the gradual expansion of the "fiduciary issue". They could not sell securities, and in that way absorb some of the "free accounts" that were gradually released,

since the claims which the central banks hold against the *Länder* and the Bizone are not marketable. The discount policy could not have reached the "fiduciary issue", nor could the raising of the reserve requirements have done so. The latter course of action would merely have forced the banks to borrow from the central banking system on the basis of their claims against the *Länder*; it could not have produced a reduction in the "fiduciary issue" or even a slowing down in the rate at which that issue was expanding.¹ The central banks could perhaps have slowed down the additional expansion which took place through the creation of bank credit, once it had become clear that the "fiduciary issue" by itself was becoming too large and would lead, along with the tremendously high velocity of circulation, to general price rises. Efforts were made in this direction. But to stop the expansion of bank credit altogether would have meant paralysing the productive process, since those firms which could only gradually dispose of their free accounts were obliged to borrow in the meantime if they wanted to produce at all. Moreover, the free accounts were very unevenly distributed, so that many firms would have been unable to maintain or expand their production without borrowing, even if their accounts had been released in time. Thus, banking policy could become effective only after most of the accounts had been released and a certain expansion of bank credit had taken place. If, on the other hand, the "fiduciary issue" had been kept small, a considerable expansion of bank credit could have been permitted without danger of inflation, and monetary policy could have operated effectively on a relatively large volume of bank credit, and could have kept the total volume of money at a much lower level than was possible under the procedure actually followed.

Monetary policy was further restricted in its methods of operation by the institutional arrangement according to which the *Länder*, as was pointed out above, received their initial endowment with DM in the form of a deposit in the central bank of the *Land*, and the Post Office and the Railway received theirs in the form of a deposit in the *Bank Deutscher Länder*. The expenditures of these DM increased the liquidity of the commercial banks, so that in the first months after the reform there was no need for the banks to rediscount with the central banks in order to acquire the necessary backing for their credit expansion. Here is the main source of the great liquidity of the commercial banks after the reform which surprised so many observers. Other factors contributed, e.g., the release of the second "Kopfquote" (20 DM per head) in September (amounting in the aggregate to 1,000 millions). Since the commercial banks had a like amount credited to them in the central banks, and the public left part of their new DM on deposit with the commercial banks, the latter's reserve ratio

¹ The release of 20 per cent. of the blocked accounts (i.e., of roughly DM 900 millions) in October was unjustified, for at that time the inflationary tendencies were already fully in evidence.

was increased by this procedure. The great liquidity of the banking system meant that discount policy could not be really effective. Only the raising of the reserve requirements could have dealt with the situation. But in view of the newness of this weapon for the German banks, and its unpopularity, the authorities hesitated to use it until relatively late. If the initial endowment of the *Länder*, the Post Office and the Railway had been given in the form of deposits with the commercial banks, this problem of excess liquidity would not have arisen.

When prices began to rise rapidly, and social unrest followed, the authorities did take measures to stop further expansion of bank credit. On November 10th, they restricted the rediscounting of bankers' acceptances to those with a maturity of less than ten days, except in cases where the bankers' acceptances served to finance foreign trade. On December 1st they raised the reserve requirements for demand deposits from 10 to 15 per cent. for all banks situated in places where a *Landeszentralbank* is located, and issued a warning to the banks that they should in principle not increase the total volume of lending beyond the level of October 31st. Owing partly to these restrictive measures, but partly also to other developments which we shall mention below, prices began to decline again in the second half of December.

The authorities did not make use of the discount rate in their attempt to stop further credit expansion, although an increase in the rate was seriously considered. In view of the liquidity of the commercial banks it would not have been very effective. The discount rate was kept all the time at 5 per cent. and the rates charged to customers by the banks were kept at between 6 and 9 per cent., varying according to the size of the loan and the security offered. The raising of the reserve requirements led to an increase in the rate charged to customers of about one-half per cent.

The German authorities obviously have no intention of following a cheap money policy; on the contrary, they are prepared to use the discount policy in the orthodox manner, and are able to do so without being handicapped by considerations of its effect on the prices of government securities. Germany is thus returning to the classical methods of monetary policy. As she is also returning as far as possible to a free market economy, we witness the remarkable spectacle of a country whose economy had been paralysed by a lost war and its aftermath, attempting reconstruction by organising its economy according to the "old-fashioned" precepts of the classical economists, and doing so on the whole with marked success.

II.

THE EFFECTS OF THE CURRENCY REFORM

The immediate effect of the reform was startling. On June 19th, a Saturday, not a single article could be seen or had in the retail shops.

On June 21st the shops were full of goods : housewares, textiles, cameras, etc. These stocks had been withheld, because with the knowledge that the reform was imminent, no trader wanted to sell against RM and be left with RM balances. The supply of goods in the retail shops, which had never been large since the end of the war, had completely dried up in the months preceding the reform. The scarcity of money in the first week forced the hidden inventories on to the market, and the dramatic change in the supply of goods was the main reason why the reform found general acceptance among the population at least in the beginning. The developments which took place during the following six months can, however, not be ascribed solely to the currency reform. The return to the free market economy for almost all industrial products (the most important exceptions being coal, iron and steel), and the Marshall aid which began to arrive in larger amounts towards the end of the year, share with the currency reform the merit of having brought about a remarkable revival of the German economy.

Many critics argue that the controls should not have been removed, or at least not so rapidly. But in view of the complete discredit into which the controls of prices and quantities had fallen, and in view of the difficulty of making the controls effective, given the weak authority of the officials charged with administering them, the bold step of removing the controls simultaneously with introducing the currency reform was undoubtedly the right policy to follow. If it was to be done at all, this was the psychological moment. The currency reform had created a new atmosphere of great expectations, an atmosphere in which other measures were willingly accepted. Had the authorities kept the controls on for a few months longer it is very probable that their removal would have been impossible to achieve. Even the socialists who began demanding the reintroduction of controls when prices began to rise lacked the courage of their convictions : when a vote was taken in Frankfurt there were not enough socialists present, and their resolution was defeated.

Under the new conditions created by the currency reform and the partial return to a free market, production increased rapidly. Unfortunately there are no figures which reflect this increase accurately. The index of industrial production which is given in Table 2 shows

Table 2. Index of Production.¹
(1936=100)

| 1948 | | | | 1948 | | | |
|--------|----|----|-------|-----------|----|----|----|
| April | .. | .. | .. 53 | September | .. | .. | 70 |
| May | .. | .. | .. 47 | October | .. | .. | 74 |
| June | .. | .. | .. 51 | November | .. | .. | 75 |
| July | .. | .. | .. 61 | December | .. | .. | 78 |
| August | .. | .. | .. 65 | | | | |

¹ Source : *Monthly Statistical Bulletin of the Control Commission for Germany (British Element)*, December, 1948.

an increase for the Bizone of 53 per cent. between June and December, 1948. The index, however, probably overstates the increase that has taken place. Before the currency reform, that part of production which went into hidden stocks, or was used for "compensations", was not registered; on the other hand, it is also likely that the index does not fully register the expansion that has taken place since the reform because there is still some production for hidden stocks and for transactions which are "black" in the sense that they are hidden from the tax authorities. On balance, however, it may be assumed that production did not rise as much above the pre-reform level as the index would suggest. Developments in different industries differ widely. The most marked increases are found in some semi-finished and finished products.

Table 3. *Production of Selected Commodities in the Bizone.*¹

| Month | Coal (^{000 metric tons}) | Pig Iron (^{000 metric tons}) | Steel Ingots (^{000 metric tons}) | Trucks and Buses (⁰⁰⁰) | Passenger Cars (⁰⁰⁰) | Freight Cars (⁰⁰⁰) | Bicycles (⁰⁰⁰) | Leather ² Shoes (^{000,000 pairs}) | Synthetic Staple Fibre (^{000 metric tons}) |
|--------------------------------|--|---|---|---|---|---------------------------------------|--------------------------------|---|---|
| 1936 average | 9,747 | 1,046 | 1,187 | 3.0 | 14.5 | — | 71.6 | 3.3 | 1.9 |
| 1948: Jan.— June average | 6,796 | 298 | 335 | 1.5 | 1.6 | 16 | 42 | 1.3 | 2.2 |
| July .. | 7,764 | 402 | 457 | 2.3 | 2.6 | 41 | 77 | 2.0 | 3.1 |
| August .. | 7,457 | 433 | 510 | 2.4 | 2.1 | 51 | 93 | 2.2 | 3.6 |
| September | 7,569 | 469 | 571 | 2.8 | 3.5 | 325 | 107 | 2.6 | 3.8 |
| October .. | 7,868 | 511 | 610 | 3.2 | 3.8 | 684 | 116 | 2.6 | 4.3 |
| November | 7,718 | 493 | 599 | 3.4 | 4.0 | 729 | 124 | 2.5 | 4.8 |
| December | 8,096 | 514 | 612 | 3.9 | 4.3 | 814 | 127 | 2.6 | 5.2 |
| 1949: Jan. | 8,205 | 547 | 651 | — | — | — | — | — | — |

The expansion in production was not due to an increase in employment. The number of unemployed in the Bizone actually rose after the reform from 442,000 in June, 1948, to 743,000 in December, and, owing partly to seasonal influences but partly also to the fall in prices, it rose further to 944,000 in January, 1949. The increase in production is to be explained by a combination of several factors:

(1) A decrease in absenteeism. In May, 1948, a worker stayed away from his job on the average 9.5 hours a week; in October he was absent only 4.2 hours a week.³ This change was clearly a direct result of the currency reform which made it worth while again to work for money.

¹ Source: *Monthly Statistical Bulletin of the Control Commission for Germany (British Element)*, December, 1948, or *Statistische Monatszahlen*, edited by the *Statistische Amt des Vereinigten Wirtschaftsgebiets*, December, 1948. January figures are from the report on the economic situation in January, 1949, published by the *Verealtung für Wirtschaft des Vereinigten Wirtschaftsgebiets*.

² Footwear other than leather footwear increased from 540 thousand pairs in June, to 1,578 thousand pairs in December, 1948.

³ *Statistische Monatszahlen*, *op. cit.*, December, 1948, p. 17.

(2) Greater productivity per man-hour resulting from better living. No figures are available for this increase in productivity per man-hour, except for coal miners, where the increase was inconsiderable. But as the coal miners enjoyed a privileged position prior to the currency reform their case cannot be generalised. Employers in most industries agree that an increase in productivity has taken place.

(3) A fall in "real" costs. Many persons formerly engaged in barter transactions (such as the compensators), or kept busy with paper work connected with the controls, could now be redirected into more productive occupations. And firms, which previously had often been obliged to produce, solely for bartering purposes, commodities which were not strictly in their line of business, could now concentrate on the production of the commodities for which they were best equipped.

(4) There is finally the supply of raw materials brought in by Marshall aid. These began to arrive in considerable quantities, however, only towards the end of the year, and it is to be presumed that immediately following the reform many firms still had stocks of raw materials left over from the end of the war.

We turn now to the price developments after the currency reform. Unfortunately, no adequate price index is available. The cost of living index for the Bizone (July, 1948: 138 December, 1948: 144) is totally misleading. It is heavily weighted with the prices of commodities that are still controlled, in particular rents and agricultural prices. Agricultural products are largely bought in the black market where prices are many times higher than the controlled prices. Thus, in November, a pound of butter cost in the black market about 20 DM, as compared with the official price of 2.56 DM. If we take industrial prices, we find that ordinary men's shirts had risen in price between July and December, 1948, by between 144 and 176 per cent., and cost in December between 13.90 and 18 DM according to the locality; stockings had risen (in Hamburg) by 342. per cent. and cost 12 DM in December; men's shoes had risen (in Hamburg) by 118 per cent. and cost 45 DM in December.¹ Most other consumers' goods had risen somewhat less than this, but the general tendency throughout was, until the middle of December, sharply upwards.

When we consider that a coal miner's monthly income before taxes in July amounted on the average to 269 DM, and that in October it was still only 273 DM, and that the incomes of other industrial workers are considerably lower than this (the hourly wage of a skilled worker in September, 1948, ranged from 1.14 DM in Bavaria to 1.42 DM in Hamburg), it is not surprising that the price rise led to social unrest. On the whole, however, German workers showed astonishing restraint in their wage demands; their attitude is governed

¹ These figures are taken from the *Statistische Monatszeitschriften*, *op. cit.*, p. 44.

by a quite justified inflation complex and the knowledge that wage increases will in the end be nullified by further price increases.

After the currency reform, prices in Germany had to be formed, as it were, *ab ovo*. The relative structure of the controlled prices which existed at the moment of the reform did not reflect the relative scarcities of the various commodities. A new price structure expressing these relative scarcities had to be found without any guidance from yesterday's prices. The sellers at first simply tried out whatever prices they thought they could charge, and as the money stream was continually increasing up to the end of the year they continually raised their prices. The process of trial and error by which the new prices were formed manifested itself in the co-existence of substantially different prices for the same commodity sold at the same time in different shops; and as between different localities the price differences were still greater. Competition worked only slowly, because the sellers lacked adequate information about the market and because, after almost twenty years of planned economy and controlled prices, they had to learn all over again that watching the market in order to take advantage of price differences is of the essence of the trader's job. Another effect of the long period of price control was that the producers, being used to the formula "price = cost plus a reasonable margin of profit", continued to charge prices which reflected their costs, and failed to take advantage of the high level of demand which would have allowed them to charge higher prices and make larger profits. Wholesalers and retailers, on the other hand, being closer to the consumers, reacted quickly to the increase in the demand by raising their prices to what "the traffic could bear", with the result that the big profits in this period were made not by the producers but by the traders.

The few figures quoted above give some indication of the change in the relative price structure which took place in the second half of the year. The whole list of retail prices given in the source from which those figures are taken shows that the price movements for individual commodities over the period June to December, 1948, ranged between a decline of .6 per cent. (for pots and pans) and a maximum increase of 342 per cent. (for stockings). A complete reversal of price policy for foreign commodities accentuated the change in the relative price structure. Whereas before the reform the Joint Export-Import Agency (Jeia) bought the imported commodities at the world market price but sold them in Germany at the controlled price,¹ after the reform the imported commodities were (with some exceptions) priced in DM on the basis of their world market price and an exchange rate of 30 cents. for the DM. This led to sharp price increases for these commodities.

¹ At the same time German export commodities were bought at the controlled prices and sold at world market prices, the profits from these transactions being used to finance the losses on imports.

The major part of the agricultural sector (along with certain basic industrial products on which controls continued) was excluded from this process of finding a new price structure conforming to the relative scarcities of the products. Farmers, confronted with extraordinarily low prices for their own products compared with those of industrial products, are at present in a difficult position. Whereas they had been the chief beneficiaries of the situation existing prior to the currency reform, they are the main sufferers under the new "régime". They find their own remedy, of course, by selling a large part of their produce on the black market. The agricultural problem in Germany is one to which it is difficult to find a satisfactory solution at present. On the one hand, it is impossible to remove the controls from industrial products while retaining them on agricultural products without creating a black market in the latter. On the other hand, if food prices were to be decontrolled, they would rise (as the black market prices indicate) to levels such that the poorer section of the population would be unable to buy sufficient food. The granting of subsidies to agriculture is not a practical solution, given the financial position of the *Länder*. Under present conditions, then, it seems that the best policy would be to make the black market legal, i.e., officially to recognise two markets, the controlled and the free market. In the controlled market agricultural products would be, as now, sold at low prices in quantities that guarantee to each family a subsistence minimum. And the farmers would be, as now, obliged to deliver these quantities.¹ What they produced above this level they would have the right to sell in the free market to those able and willing to pay the higher prices. This policy would merely legalise the present state of affairs. Once the supply of agricultural products was sufficiently increased, through imports, the system of two markets could be dropped.

A complete change in the relative price structure in Germany was to be expected. As was pointed out before, however, the general price rise came as a surprise to most observers. The rise was due to the continuous increase in the volume of money, the high velocity of circulation, and, finally, the renewed hoarding of goods which developed in the latter part of the year. On the first of these factors we have already commented. The velocity of circulation cannot be measured statistically, but all observers agree that it was extraordinarily high in the second half of the year. There were two reasons for this: The first was the pent-up demand of households and firms. For several years many households had been unable to buy articles of the most common necessity. Losing a needle, breaking a cup, tearing a hole in a stocking could be a major catastrophe. It was therefore to be expected that as soon as commodities appeared on the market there

¹ There is always a danger that it may prove impossible to collect the necessary quantities from the farmers, a danger which is more acute the higher the prices of industrial products rise. The fall in the prices of the latter which occurred at the end of the year will doubtless help to overcome the resistance of the farmers.

would be a rush to buy. Secondly, the Germans, with the experience of two inflations, and of the severe losses they implied for holders of cash, instinctively distrust any kind of currency. And this distrust was enhanced by the price rise that followed the currency reform, and by the cancellation of 70 per cent. of the new blocked DM accounts. The Germans have a strong preference for illiquidity, and try to get along with the absolute minimum of cash. It is this attitude towards money which endangered the success of the currency reform from the beginning. A further factor which helped to undermine the Germans' confidence in the new currency were the low free market rates for the DM quoted in foreign centres; a large part of the population closely follows movements in these quotations. The rate quoted for 100 DM in Zurich was 30 Sw. Frs. in July, and it had fallen to 18 Sw. Frs. at the beginning of December; the rate recovered to 30 Sw. Frs., however, at the beginning of the new year. (The cross rate corresponding to the official 30 cents. rate would be 100 DM = 123 Sw. Frs.). Although the market in Zurich is extremely thin, and the rate that establishes itself there is the result of a supply of and demand for smuggled DM, so that it is itself an artificial rate, the knowledge in Germany that such low rates were quoted abroad was sufficient to affect the attitude of the Germans towards the new currency.

The third factor responsible for the price rise, the new hoarding tendencies on the part of firms, which began once more to withhold commodities from the market, was due in the first place to the expectation of further price rises, and in the second place to the pending "Lastenausgleich". It was not yet known what the date would be for the assessment of property, and firms were anxious to have as large a part as possible of their assets in invisible form. It might have been expected that to this end they would have shifted out of commodities into banknotes, since the latter can be more easily hidden. But, since it was known that the existing issue of notes was going to be replaced later on by a new issue, so that the holdings of bank notes would in the end have to be disclosed, it seemed wiser on the whole to hide commodities in preference to notes whenever possible.

It is worth noting that deficit financing on the part of the *Länder* was not a factor contributing to the inflation, at least if we disregard the spending of their initial endowment of DM. This endowment was used up by September, and the budgets of the *Länder* taken as a whole were roughly balanced after that date. There are, however, wide differences between the *Länder*. There exists for Western Germany no common pool into which some taxes, at least, are paid in order to be redistributed, according to some reasonable criterion, among the *Länder*. Even the receipts from duties on imported goods go to the *Land* which the goods happen to enter first. The result is that some *Länder*, in particular Hamburg and Rheinland-Westfalen (which includes the Ruhrdistrikt) have surpluses, while

other *Länder*, such as Schleswig-Holstein, which has the heaviest expenses for refugees from the east, and the *Länder* of the French Zone, which have relatively heavy occupation costs, have deficits and are in debt to the Central Banking System.¹

Given the lack of confidence of the Germans in the new currency, and given the renewed hoarding tendencies, it was essential that a slight shock should be administered to the German economy. The price rise had to be brought to a standstill, or, better, the price movement had to be reversed. The monetary authorities, by tightening the monetary controls (as was indicated above), did, indeed, succeed in reversing the price trend. Other factors contributed to the same result. The Bill which was passed in Frankfurt providing for a provisional "Lastenausgleich" settled an important issue: the property assessment was to be based on the property held at the date of the currency reform (at which date the firms had been obliged to submit a complete inventory of their assets); the Bill thus removed an uncertainty which had led to the hoarding of commodities. And, although the Bill was held up in the complicated law-making machinery which now exists in Germany, and has not yet become law at the time of writing, no change in the date for the assessment of property is expected by those concerned. Heavy tax payments due at the end of the year also led to dishoarding of commodities. As a result of all these factors prices began to fall in the latter half of December, 1948, and continued to fall in January, 1949.

The fact that prices are high in relation to incomes, is, of course, an inevitable reflection of the poverty of Germany consequent on the war and its aftermath. No monetary policy or administrative measures can change this fact, except indirectly through their influence on the total output of the German economy. But the inequities which accompanied the inflation in the second half of 1948 (high profits of firms, and particularly of wholesalers and retailers, at the expense of the real incomes of wage and salary receivers) were an avoidable by-product of the currency reform which, given the unwillingness of the Germans to hold cash, had endowed the German economy with too much money. However, the phase of inflation, and of lack of confidence in the new currency, seems to have come to an end with the beginning of the new year.

III

WEAK SPOTS IN THE GERMAN ECONOMY

The currency reform, coupled with the partial return to a free market economy, was, all criticism notwithstanding, a tremendous success. No statistics can give an adequate picture of the change which the

¹ It is clear that in the sphere of public finance, just as in the sphere of banking, decentralisation has been pushed too far.

German economy has undergone since the reform. Only direct observation of the standard of living of individual families, of the methods of doing business of individual firms, of the traffic on the roads, of the reconstruction work in towns, before and after the reform, gives a true impression of the extent of the revival which followed the reform. There remain, however, two main weak spots in the German economy: capital formation and foreign trade.

After the tremendous loss of real capital during and after the war the greatest need for the German economy is undoubtedly the formation of new capital. The internal sources from which this capital can come are the savings of individuals, the profits of firms, and, possibly, surpluses in the budgets of the *Länder* (which can, however, be excluded for all practical purposes in the near future), and, finally, "forced saving" brought about by the expansion of bank credit.

The will, as well as the ability to save is naturally weak in Germany at present. Replies to questionnaires sent out to individuals indicated¹ that in June (before the reform) 59 per cent. of those questioned intended to save in the future, in July 49 per cent., and in October (after the cancellation of part of the blocked accounts) 32 per cent. In fact, all through the second half of 1948 out-payments from savings accounts exceeded in-payments. Some attempt has been made by firms to tap savings directly by floating long-term bonds carrying interest rates of between 5 and 6.5 per cent., the issue price usually being 98. Few such bonds have, however, found buyers. In January, for the first time, in-payments on savings accounts exceeded out-payments, probably as a result of the reversal of the price movement. This fact confirms the belief that the crisis of confidence in the DM has passed. Nevertheless, large savings cannot be expected in the near future.

Turning to the second source of capital formation, profits, we must consider the problem in conjunction with the present tax burden. Let us take the example of an unincorporated firm with a capital of DM 1,000,000 and an annual profit of DM 100,000, and suppose that the firm does not evade taxes. According to the new tax rates established after the currency reform, the owner of this firm, (assuming him to be a bachelor) has to pay an income tax for the year of DM 76,746, a property tax (which is *not* deductible for purposes of the income declaration) of DM 25,000, and a church tax of DM 3,000,² or a total of DM 104,746, i.e., more than 100 per cent. of his profits. It is true that a maximum of DM 10,000 can be reinvested in the firm without being subjected to tax; but it is also clear that unless the owner of the firm has income from another source he will be unable to reinvest anything at all. He is obliged to consume capital. If

¹ The results are reported in the *Zeitschrift für das gesamte Kreditwesen*, January 1st, 1949, pp. 28f.

² The rate varies according to the *Land*. The rate assumed in the text is that of the *Land* "Südbaden".

his profits were DM 200,000 he would pay in taxes a total of DM 199,246. Actually the situation is even worse than these figures suggest, since depreciation has to be calculated on the basis of the original or historical cost of the equipment. In view of the price rise that has taken place, depreciation thus calculated is insufficient to finance replacements. With these tax levels, capital formation out of profits by unincorporated business is out of the question, and it is no wonder that tax evasion occurs on a large scale. Corporate business is in a better position. There is a flat rate of 50 per cent. on corporate profits (dividends are, of course, subject in addition to the income tax payable by the recipients). As corporations do not pay the church tax, the total tax (including the property tax) on a firm with an annual profit of DM 100,000 and a capital of DM 1,000,000 would be DM 75,000, leaving a profit after taxes of DM 25,000.¹

It is likely that a lowering of the tax burden (which in fact already began on January 1st, 1949, with a reduction in the property tax) would not reduce tax receipts and might even increase them. At the same time it would undoubtedly augment the volume of investment even were the reduction of the tax burden, through its effect on incentives, to produce no rise in profits before taxes. This is so because "black" profits will seldom be used for investment in real assets, since the latter cannot easily be hidden from the tax authorities. A lowering of the tax burden, by reducing or even eliminating tax evasion, would release for investment sums which, because they are retained illegally, are now by necessity used for consumption.

The third source, forced saving through the expansion of bank credit, undoubtedly played a major rôle in the second half of 1948. It was the granting of bank loans for financing investment goods which largely accounted for the fact that the production of investment goods rose even faster than that of consumers' goods during that period. But, given the restrictions imposed on bank lending by the authorities towards the end of the year, this source is not likely to account for much new capital formation in the near future. Another source may eventually be provided by the release of the 10 per cent. of the blocked balances which, according to the original intentions, are supposed to be released for investment purposes some time in the future.

If the German economy is to make further progress, it is necessary not only that new capital should be formed, but also that it should flow into the right channels. Highest on the list of industries which should be expanded are the export industries. The increase in exports ought to take priority even over the reconstruction of dwellings. In fact, however, for reasons which we shall mention below, it has not so far taken first place. Such investment as has taken place since the currency reform has gone largely into the reconstruction of buildings

¹ A by-product of these tax laws is a large number of applications for incorporation by unincorporated firms.

(particularly of retail shops) and into the expansion of domestic industries.

According to Jeia statistics, the total imports of the Bizone amounted in 1948 to \$1,386 millions, and the total exports to \$599 millions. In the second half of the year (i.e., after the currency reform) imports amounted to \$750 millions and exports to \$369 millions.¹ Considerably more than half of the total imports (\$787 millions) thus came in on credit in 1948.² If the Bizone is to live within its means, and at the same time maintain even its present standard of living, exports must be increased by roughly two-and-a-half times, and this increase must be accompanied by an increase in total output by at least the same amount. All this has to be accomplished by 1952 if Germany is to become economically "independent" by the time when Marshall aid ceases. The long term European Recovery Programme for the Bizone is even more ambitious. It envisages for the fiscal year 1952-53 exports as high as \$2.7 millards, i.e., exports which are four-and-a-half times as high as those of 1948. It is difficult to see at present how this "target" can be reached. The increase in exports must mainly take the form of an increase in the exports of finished goods. In 1948 more than half of the total exports still consisted of coal and timber, an unnaturally high percentage of raw material exports for an industrialised country.

An increase in the exports of finished goods is, however, hindered by several factors: First, the German exporter cannot adequately explore the foreign market. It is true that most of the red tape that had paralysed exports before December 1st, 1948, has been removed by a new regulation according to which the German exporter can now directly negotiate with the foreign importer (which was impossible previously since the export business was in the hands of the Jeia and the exporter had contact only with that organisation). But it is still very difficult for him to travel abroad, and impossible for him to set up agencies abroad. He is, therefore, unable to find out for himself what sells well in the foreign market, as he could if he were able to

¹ See *Monthly Statistical Bulletin of the Control Commission for Germany (British Element)*, Vol. III, No. 12, p. 100. German statistics give different figures. For the second half of 1948 imports are given as DM 1,994 millions and exports as DM 1,332 millions (*Monatliche Aussenbandelstatistik des Vereinigten Wirtschaftsgebietes: Zusammenfassende Übersichten*, December, 1948). According to these figures, the ratio of imports to exports is much smaller than that given by the Jeia figures. The difference is explained in part at least by the following discrepancies between the two sets of statistical records: (1) The Jeia statistics include some "invisible" items which are not included in the German statistics; (2) The Jeia statistics are based upon Jeia accounting records which are obtained from documents received during the month, and since there is a time-lag between the movement of the goods and the receipt of the documents, the figures do not give the actual movement of goods during the month. The German statistics, on the other hand, are based on records of imports and exports for the month in which the goods actually cross the frontier.

² There are three categories of imports: "Category A" imports are non-commercial imports paid for out of appropriate funds. "Category B" imports are commercial imports. A third category consists of the Marshall aid imports. If we take the commercial imports alone and compare them with exports, we find that the Bizone had, in the second half of 1948, an export surplus.

send out designers, technicians and commercial representatives to report on foreign styles, on technical developments, on prices, and on the potential demand for his products.

There is secondly the fact that German trade is carried on within the framework of bilateral payments agreements which, in many cases, require the periodic settlement of the clearing balance. The payments agreement with France of November, 1948, requires, for instance, that any credit or debit balance on the clearing account established in the Bank of France shall be "due and payable in its entirety on the 31st March, 30th June, 30th September and 31st December, respectively, and, on the demand of the creditor, shall be settled immediately in U.S. dollars" (Article 5). The fear of running into a trade deficit at the end of each quarter tends to promote a race between the two partners each of whom strives to achieve a quarterly surplus by restricting imports from the other, and allowing only those commodities to enter which are considered absolutely "essential". A large part of the finished goods which Germany could export in exchange for more or less "essential" imports are not considered "essential commodities" by her trading partners. The bilateral agreements with quarterly settlements in dollars (agreements which do not even allow for discrepancies due, for example, to seasonal fluctuations which tend to balance each other out over a longer period) are thus a serious obstacle to the expansion of German exports.

Finally, there is the problem of the exchange rate. While it is impossible to demonstrate statistically that the DM is overvalued, most observers (the present writer among them) would agree that the 30 cents. rate considerably overvalues the DM, and that this rate is the greatest single handicap for German exports. It is quite true that this overvaluation may disappear if the fall in German prices which set in late in December, 1948, continues; and in any case the adjustment of the rate must wait until a certain stability of the German price level has been reached. But if, as is likely, prices do not fall sufficiently to remove the overvaluation, the downward adjustment of the rate is the most important measure that can be taken to promote the German export industries, and to make them attractive outlets for further investment expansion. Whether such an adjustment will obtain the approval of Germany's competitors in the world market is a question which, along with other more political aspects of the foreign trade problem, cannot be discussed here.

The establishment of an appropriate external value for the DM, once the DM has "settled down" to a relatively stable internal value, is, together with tax reform, the most important step that can be taken to complete the work that was started with the currency reform.

The Opinions of Horsley Palmer

GOVERNOR OF THE BANK OF ENGLAND, 1830-33

By J. K. HORSEFIELD

"The words of a patriarch, though generally diffuse and sometimes incoherent, are worthy of regard."—*Kai Lung Unrolls his Mat.*

1. In a forthcoming history of the Bank of Ireland by Mr. F. G. Hall,¹ which I have been allowed to see in draft, there occurs a reference to some unofficial correspondence in 1829 between John Horsley Palmer, then Deputy Governor of the Bank of England, and his opposite number at the Bank of Ireland, William Peter Lunell.² The correspondence seems to have developed out of conversations between the two men in London early that year. One of Palmer's letters alludes to discussions with the Chancellor of the Exchequer, and it is also known that during their visit the deputation from Dublin discussed with the Bank of England the problems created by the run in 1828 on the newly-formed Provincial Bank of Ireland.³ Palmer, who as Clapham says⁴ was "a vigorous, outspoken man," evidently thought that the opportunity to influence the Bank of Ireland's policy should be followed up. In his letters, Palmer urged that the Bank of Ireland should co-operate with the Irish joint-stock banks, both for its own advantage and in the public interest; but the Bank of Ireland remained unconvinced. It is proposed to take the opportunity afforded by these letters to reconsider the contribution which Horsley Palmer made to the theoretical discussions of banking policy and practice in his day.

2. John Horsley Palmer was born on 7th July, 1779, and died on 7th February, 1858. He became a Director of the Bank in 1811, and remained on the Court until 1857, except for the usual break every third year down to 1825-6 and a further break in 1845-6. He was Deputy Governor of the Bank from 1828-30, and Governor 1830-33, his term being extended for a third year because of the appointment in 1832 of the Committee of Secrecy on the Bank of England Charter; he was the first Governor for 70 years, and the fourth in the history of the Bank, whose term was so prolonged.

3. Palmer published, so far as is known, only three books, or rather pamphlets: *Reasons against the Proposed Indian Joint Stock*

¹ To whom I am greatly indebted, as also to the Court of the Bank, and to its Secretary, Mr. C. T. S. Logan, for the opportunity to consult the Bank's Minute Books.

² Deputy Governor 1828-30; Governor 1830-32.

³ An extensive correspondence between the two banks on this episode is referred to in Chapter 4 of Mr. Hall's history.

⁴ *The Bank of England: A History*, II, 114.

Bank, in a Letter to G. G. de H. Larpent, Esq. . . . (1836); *The Causes and Consequences of the Pressure upon the Money Market . . .* [in] 1836 (1837); and *Reply to the Reflections of Mr. Samuel Jones Loyd, on the Pamphlet entitled "Causes and Consequences . . ."* (1837). But he was also a much-questioned witness before the Committees of 1832, 1840 and 1848, and he gave a written 'Opinion' to the Committee of 1857, so that a large body of documentation upon his views exists.¹ Nevertheless, since the bulk of this material is in the form of answers to questions, and most of the remainder is concerned with an *apologia* for the conduct of the Bank over a specific period, particular interest attaches to the spontaneous opinions expressed in the correspondence with Lunell now brought to light. They also represent the earliest expression yet available of the views which he had been developing for the previous "three or four years",² antedating by two years a letter referred to by Clapham³ which seems to have been in some sense an official continuation of the present correspondence.

4. A great deal of the material contained in Palmer's two pamphlets on the 1836 crisis, and in his evidence to the Parliamentary Committee, is of historical rather than analytical interest and will not be dealt with here. In the course of these expositions, however, he expressed incidental opinions on a large number of problems of theoretical significance, and parallel comments are to be found in the Indian pamphlet and in the correspondence now disclosed. We shall attempt to arrange the problems discussed into logical categories, but there will inevitably be a good deal of overlapping between them.

GENERAL FUNCTIONS OF A CENTRAL BANK

5. It is perhaps in this field that the most forthright statements appear in the letters to Lunell. In the second sentence of his very first

¹ In my footnotes which follow the references are thus abbreviated:—

| | |
|------------|--|
| "Causes" | = <i>Causes and Consequences of the Pressure . . .</i> , [page] |
| "Reply" | = <i>Reply to the Reflections . . .</i> , [page] |
| "India" | = <i>Reasons against the Proposed Indian . . . Bank</i> , [page] |
| "1832" | = <i>Evidence to the Committee of Secrecy on the Bank of England Charter, 1832.</i> |
| "1840" | = <i>Evidence to the Select Committee on Banks of Issue, 1840.</i> |
| "1848" | = <i>Evidence to the (Commons) Secret Committee on Commercial Distress, 1848.</i> |
| "1848 H/L" | = <i>Evidence to the (Lords) ditto.</i> |
| "1857" | = Opinion (dated 15th October, 1856) given to the Select Committee on Bank Acts, 1857, and reprinted in their <i>Report</i> , pp. 1, 6. |
| "Letters" | = Correspondence with Lunell, viz.:— Letter 1, Palmer to Lunell, 9 February, 1829. Letter 2, Lunell to Palmer, 26 March, 1829. Letter 3, Palmer to Lunell, 30 March, 1829. Letter 4, Lunell to Palmer, 16 April, 1829. Letter 5, Palmer to Lunell, 18 April, 1829. Letter 6, Lunell to Palmer, 22 April, 1829. |

[Paragraphs of letters not numbered in original.]

² Letters, 1, para. 2.

³ Clapham, *loc. cit.*

letter there occurs a reference to the Bank of England as "the head and pivot of the circulation of the Empire".¹ At a later stage in the same letter the eventual responsibility of the Bank of England to uphold "the credit of the Banks in Ireland" is put forward as a reason for proposing methods to economise the retention of gold in Ireland. Later on in the correspondence the inference is drawn that the charter of the Bank of Ireland imposes upon it similar obligations, and Palmer urges Lunell not to shrink from the accompanying responsibility.²

6. This, however, implied acting not as wicket-keeper but as long-stop. For the most part, Palmer held that the functions of a Central Bank were passive ones; it was only when an emergency developed that its responsibility as the lender of last resort required it to take an active rôle. This is the explanation of the apparent difference between the vigorous language of the letters and the rather anæmic explanations frequently given to the Parliamentary Committees. In normal times, as he told the Committee of 1832, the principal function which it was the duty of the Bank to perform was³

to furnish the paper money with which the Public act around them, and to be a place of safe deposit for the public money, or for the money of individuals who prefer a public body, like the Bank, to private bankers.

After further explanation of the use made of Bank of England notes by the London Deposit Banks, he summed up as follows⁴:

The Bank of England is required to provide a requisite supply of paper money for the average circulation of the sphere in which it acts, and to uphold public and private credit when called upon. When commercial credit is affected, it is in such times that the credit of a great body like the Bank of England is available, and has the power to uphold the credit of the country.

7. This attitude became doubly clear when in 1837 he was defending the conduct of the Bank in the recent crisis. He argued that the Bank was fully justified in raising the rate of interest in an attempt to check

¹ Letters, 1, para. 1. The simile evidently appealed to Palmer, for he repeated it, in less wide-ranging form, on several subsequent occasions, e.g.: 1832, Q.361: "A material increase of [the issues of] the Bank in London (the pivot of the general circulation) . . ."; Reply, 7: "... while the Bank is the pivot of the circulation of the kingdom". But in its Imperial form it did not appeal to Lunell, who was careful in his reply (Letter 4, para. 5) to misquote the phrase as "the Pivot of the circulation of England".

² Letters, 3, para. 7. "You state that you should shudder at the responsibility which such an Agency [See p. 147, n. 2 below] would impose upon the Bank; now I do not see what responsibility could attach beyond taking care that the proposed deposits were not permanently diminished. It is true that some trifling responsibility might arise from any sudden discredit in the interior, but if such discredit arose from improvident action of the Joint Stock Bank upon which it attached, the Bank of Ireland would have the power of preventing the inconvenience a second time."

³ 1832, Q.181.

⁴ 1832, Q.198.

the export of bullion; the only question was whether they ought not to have done so earlier. But, he argued,¹ this would

have established a precedent and imposed future responsibilities upon the Directors, which it is questionable whether they should ever incur, either upon their own account or that of the public. The Bank acted precisely as any Board of Commissioners empowered solely to issue notes for bullion would have done, and can in no way be chargeable with the consequences.

That is to say, it was the responsibility of the Central Bank to plan so far as possible to prevent an emergency arising, and to deal with one after it had arisen, but not to intervene actively to avert one which was developing. From this fundamental attitude there derived a number of subsidiary views, which we may discuss in turn. The most important ones were the necessity for a fixed rule to guide the Bank, the problem of centralising the note-issues, the uses of publicity, the foreign exchanges, the appropriate action in case of an emergency, and finally the rôle of private banks.

NEED FOR A FIXED RULE

8. In his evidence to the Committee of 1832, Palmer stressed more than once the need for a fixed principle of operation by the Bank,² subject only to a discretionary relaxation in cases of emergency (para. 21 below). In practice, the actual principle which the Bank followed was embodied in the well-known 'Palmer Rule', viz.: that the reserve held by the Bank should be such that when the exchange-rate was just about to become adverse (i.e., gold was just about to flow out³) one-third of its liabilities should be matched by coin and bullion; and that it should thereafter maintain its securities unchanged, so that any loss of gold would equally reduce the notes or the deposits.⁴ A fixed principle, he told the Committee, was necessary both in order to maintain the credit of the Bank without publicity⁵ and to avoid the danger of calamity from an unfavourable Exchange.⁶ It was an important part of his thesis that the action taken under this rule was that of the public, while the Bank remained passive. Asked, for example, whether the Directors of the Bank of England did not possess "the power of regulating the whole circulation of the country", he replied,⁷

The Bank are very desirous not to exercise any power, but to leave the Public to use the power which they possess, of returning Bank paper for bullion.

¹ Causes, 36.

² References below. Cf. India, 16: "a defined system, previously promulgated".

³ 1832, Q. 134.

⁴ 1832, QQ. 72, 330, 810; 1840, QQ. 1142, 1146.

⁵ 1832, Q. 655.

⁶ 1832, Q. 670.

⁷ 1832, Q. 78, cf. 1848, Q. 1971: "I do not think by any means you can control the quantity" [of the circulation].

This is not, of course, to say that he thought the Bank's attitude towards granting accommodation should never change; on the contrary, he recognised (perhaps increasingly clearly as time went on) that it must be quite different when the exchanges were adverse from when they were favourable¹; that is to say, he reserved a discretion to the Bank (below, para. 22).

9. The absence of any reference to the 'Rule' in the correspondence with Lunell is presumably due to the fact that what was being discussed was not the internal management of the Bank of Ireland but its relations with other banks. It is, however, interesting that in drafting the "plan of action"² for the collaboration of the Irish joint-stock banks with the Bank of Ireland, he leaves blank the stipulation of a minimum cash ratio. This is in marked contrast to some official letters from the Bank of England in 1836, which recommended the full application of the 'Palmer Rule' to the Bank of Ireland.³ However, in the meantime the 'Rule' had been (as Palmer used thereafter to say)⁴ 'tacitly sanctioned' by the Parliament and the public, though the 1832 Committee's Report did nothing except explain their decision to make public the evidence taken in secrecy, and certify the creditworthiness of the Bank.

10. When in fact something like the 'Palmer Rule' was embodied in the 1844 Act,⁵ Palmer approved of the inclusion of a fixed requirement.⁶

¹ 1832, Q. 177. Reply, 13. 1840, QQ. 1411-26; 1848 H/L, QQ. 731-2.

² Letters, I, para. 5.—

1st. Capital to be deemed adequate for security and invested in Government Securities, and the principle of management of such Banks to be approved.

2nd. The Notes issued to be *only* payable in Dublin by their respective Agents in that City.

3rd. The Bank to be required to give Bills upon Dublin at sight for all sums above £10 and to exchange £1 Notes for their value in Notes of £5 and £10.

4th. Security to be given by penal statute to the Bank of Ireland against issue or re-issue by any person whatever in Dublin or within 50 miles. The Agents of such Banks being only able to pay.

N.B.—Penalties recoverable from issuers by information of any party before a Magistrate, as exists in the present Act prohibiting the circulation of Scotch Notes in England.

5th. An amount in Coin equal to _____ of their circulation and deposits to be kept by the Banks of which _____ to remain with the Bank of Ireland without Interest.

6th. An Agency of _____ per cent. upon all receipts and payments made in Dublin to be allowed to the Bank of Ireland.

7th. A mercantile discount to be allowed to the Bank of Ireland to the extent of £ _____ upon special application.

8th. Any further aid would be afforded in Coin transmitted by the Bank of England, through the Bank of Ireland, by order from the latter, for the sale if requisite of the Property deposited in the Government Securities."

³ Partly transcribed in Chapter 4 of Mr. Hall's history.

⁴ Causes, 36; Reply, 6.

⁵ See, e.g., my article, "The Origins of the Bank Charter Act, 1844," in *Economica*, November, 1944, p. 183.

⁶ 1848, Q. 1945; H/L, Q. 698. I do not think that, taken as a whole, Palmer's evidence in 1848 bears out the construction placed upon it by Wood, *English Theories of Central Banking Control, 1819-1858*, pp. 155-6, that he has "abandoned the idea that the Bank could be managed by any automatic rule". The conception of emergency departures from the normal rule was present in some form from the start, and the arguments used in 1848 were mainly re-stating the fact in language appropriate to the post-1844 situation.

Indeed, when asked what he would have the Bank do if the 1844 Act was repealed, he said he would have it conduct itself in the same way that the Act required.¹ He did not, however, approve of the Act in other respects; on the contrary, he criticised the separation of the departments, and strongly urged the need for a relaxing power to enable the Bank to come to the rescue in emergencies.² The latter view is discussed below; the former bore out Palmer's consistent attitude towards the proposal to separate the departments. In 1837 he had regarded it as useless, and indeed misleading, as a guide to the public.³ In 1840, while avowing that he had never considered the detail of a separation, he said he had never thought that there would be any benefit arising from it.⁴ So in 1848 he criticised it because it was bound up with the denial of a discretion to the Bank⁵ and because he disagreed with the underlying thesis, that the Banking Department should be conducted like any commercial bank.⁶ These views led him to recommend that the 1844 Act should be repealed,⁷ a recommendation which he repeated in 1856.⁸

II. It is perhaps worth recording that Palmer appears to have explicitly understood that the purpose of the 1844 Act was to relieve the Bank of all responsibility for the circulation⁹:

The Bank was given to understand it had nothing to do with the Circulation, that the Object of the Bank was to look at the Banking Account alone. In making that Statement I beg to say that I dissent entirely from that Doctrine; but that was the Doctrine laid down for the Government of the Bank.

Pursuing this to a logical conclusion, he added a little later¹⁰:

I never understood that the Bank were compelled to furnish Gold for the Country. That Duty falls, under the Act of 1844, upon the Issue Department.

In this quotation the word "never" cannot have been intended to be taken literally, for the assertion is, of course, in complete contradiction to the attitude he had taken earlier. Implicit in the correspondence with Lunell¹¹ and explicitly stated in 1832, is the principle¹²:

The Bank of England, under existing circumstances, appears to be called upon to retain a larger proportion of bullion

¹ 1848, QQ. 1951-2.

² 1848, QQ. 1945, 1954, 1964; H/L, QQ. 740, 779-783.

³ Reply, 10.

⁴ 1840, Q. 1603.

⁵ 1848 H/L, Q. 749.

⁶ 1848, Q. 1945.

⁷ 1848 H/L, Q. 878.

⁸ 1857, p. 6.

⁹ 1848 H/L, Q. 857.

¹⁰ 1848 H/L, Q. 911.

¹¹ Letters, I, para. 2.—

¹² "Banking in Ireland . . . is now nearly governed by three or four Joint Stock Banks situated without the district of Dublin, and 50 miles round that city: supposing therefore those Banks to be possessed of, or willing to subscribe, an adequate capital for

than it would do, if it had merely to provide for its own circulation.

And the 'Palmer Rule' was, of course, designed for this purpose. Palmer recognised that the Bank could not be safeguarded against "Internal panic or discredit" [i.e., domestic economic disturbances, as distinct from a foreign drain], and indeed said expressly that the Bank did not keep the means of meeting any demand for gold arising from such a contingency.¹ Nonetheless, he regarded a large bullion reserve as so important a factor that when asked in 1840 to suggest improvements in the monetary system to enable it to withstand crises, he replied,²

I know of no other course which could be taken beyond holding a larger amount of bullion . . .

12. It is worth noting specially that the 'Palmer Rule' linked the reserve both with notes and with deposits³ and specifically provided for a reduction of bullion to operate upon both.⁴ Indeed, one of the reasons why a large reserve was necessary was the volatility of some of these deposits. This point crops up repeatedly. In 1832 he told the Committee,⁵

. . . it is quite certain that the bankers' deposits are more liable to be called out in times of scarcity of money, and they are called out when the deposits of individuals remain undisturbed ;

adding, that during the nineteen-months' period of adverse exchanges following August 1830⁶,

I believe that the Bankers' deposits were diminished about one-half, and the deposits of individuals about one-sixteenth.

In 1837 he emphasised the point as part of the justification for the Bank's attitude to the crisis of the previous year, and gave an estimate

investments in the public funds of the country, and to be managed upon approved banking principles, there is an opportunity afforded, which no other part of the Empire presents, for endeavouring to bring those banks into that unity of action, which seems to me to be so desirable, by connecting them in correspondence with the Bank of Ireland and through that Bank, with the Bank of England, from which every requisite support could at all times be obtained without any material disturbance to the London circulation. The great object to the Bank of England in an arrangement of that kind would be enabling the credit of the Banks in Ireland to be upheld, with the smallest supply of Gold *deposited* in Ireland, and by so upholding their credit from the close connection known to exist between them and the Banks of England and Ireland, all sudden and extensive extra drain upon London would be likely to be avoided, which coming as at present in the time of a foreign demand for Bullion, is or may be, attended with the most serious consequences to the currency of the whole country."

¹² 1832, Q. 89.

¹ 1832, Q. 656, cf. QQ. 108-9, 741-2.

² 1840, Q. 1595.

³ 1840, Q. 1146.

⁴ 1832, Q. 76. 1840, Q. 1550.

⁵ 1832, Q. 145.

⁶ 1832, Q. 339.

(£3-4 million) of the amount of deposits in question.¹ The point is again made to the Committee of 1840,² and in 1848 he elaborates it still further by listing three types of account which were stable, and two other types, besides bankers' balances, which were liable to great fluctuations.³ Holding these views, it was natural that he should object, as we have seen, to the separation of the departments; the remarkable thing is that so explicit an explanation of the impossibility of treating deposits as things apart from the note-issue should have been neglected by the authors of the Act of 1844.

CENTRALISING NOTE-ISSUES

13. Another question on which Palmer felt strongly was also developed at some length in the correspondence with Lunell, viz., the need to centralise the note-issues. There he summed up his position as follows,⁴

Monopoly of paper issue or uniformity of action in its regulation I decidedly advocate, but monopoly of the Banking business I deprecate as prejudicial to the best interests of the country . . .

Monopoly not being feasible as things were in Ireland, he proceeded to develop plans for "unity of action so far as practicable", which he considered,⁵

. . . will afford the best regulation of the Paper Money, upon which the security of all, under the existing system, mainly depends . . .

This he proposed to achieve by

. . . connecting [the joint-stock banks] in correspondence with the Bank of Ireland and through that Bank, with the Bank of England, from which every requisite support could at all times be obtained without any material disturbance to the London circulation.

The detailed proposals which he made for this "correspondence" are set out in his first letter; they include the "true principle of Provincial Banking" (below, para. 24) and the "outline of a plan of action" (p. 147, n. 2 above) which would have given the Bank of Ireland the general oversight of the participating joint-stock banks, and required them to maintain with it a minimum deposit proportionate to their circulation and deposits, in return for granting them the privilege of making their notes payable by an agent in Dublin.

14. Two years later he appears to have abandoned this scheme of collaboration in favour of outright monopoly,⁶ presumably for the reason which he explained to the Committee of 1832⁷:

¹ *Comes*, 35, 51-2.

² 1840, QQ. 1553-1560.

³ 1848, QQ. 2079, 2121.

⁴ *Letters*, 3, para. 6.

⁵ *Letters*, 1, para. 2.

⁶ See the letter quoted by Clapham, *loc. cit.*

1832, Q. 469, cf. Q. 839.

I think circulation, which always ought to have reference to the foreign Exchanges, and to the relative values between this and other countries, should have one centre.

This position he subsequently maintained, testifying for instance in 1848,¹

I think it desirable, if possible, that the whole circulation should be in the hands of one body . . .

15. Closely related to this problem were two others—the functions of branch banks, and the desirability of bank-notes being legal tender. On the former of these, Palmer's explanation of the Bank of England's decision to open branches was as follows²:

I believe it was a favourite measure of Lord Liverpool, but the Bank always declined it; but, just at the period of its taking place, I believe it was proposed by the Bank itself, as a remedy for that evil which Lord Liverpool thought to be so serious throughout the country, arising from the discredit of private Bankers.

The contrast with Ireland was pointed out in *Causes and Consequences* . . . where, after explaining that originally (as in England) private banks had been tried, with the support of the Bank of Ireland, he went on³:

The situation of the two countries was, however, widely different, and consequently the private banks of Ireland almost totally failed; which, leaving the field open to other agency, occasioned the formation of Joint Stock Banks in their place.

This view explains the implied stricture in the following passage from his second letter to Lunell,⁴

Had the Bank of Ireland met the wants of the country prior to the formation of the Provincial Bank, the collision [with the latter] would never have occurred . . .

But Palmer was, even so, dubious about the propriety of working through branches, which he thought to be "a good system",⁵ not for banking, but for circulation.

¹ 1848, Q. 1971.

² 1832, QQ. 465-6.

³ *Causes*, 48.

⁴ *Letters*, 3, para. 5.

⁵ 1832, Q. 467. But he recognised in 1829 [See p. 147, n. 2 above] that in conjunction with the Bank of Ireland's monopoly the branches might be profitable outlets for the circulation: (*Letter* 3, para. 6)

"It may be right to mention that I am aware of there being some trifling advantage in favor of the Bank of Ireland's circulation at their respective Branches, so long as they possess the power to prevent the payment of the Notes of other Joint Stock Banks in Dublin, but I submit whether it could be deemed expedient for the Bank of Ireland to avail itself of such a circumstance as an objection to an arrangement which appears to offer so much real and substantial benefit to the credit and currency of Ireland."

16. On the question whether bank-notes should be legal tender, Palmer took a pragmatic view. While there is no direct reference to the matter in the correspondence with Lunell, his view may be inferred from the suggestion, as part of the plan of "correspondence", that the Bank of Ireland should be required¹

... to exchange £1 Notes for their value in Notes of £5 and £10. To the 1832 Committee he advocated the concession of legal tender attributes to Bank of England notes on the ground that during a domestic crisis this would afford substantial, even though not complete, relief²; while no inconvenience need be feared through the withdrawal of sovereigns.³ This particular controversy was closed by the Act of 1833⁴ making Bank of England notes legal tender for sums above £5 except at the Bank; but in 1856 he suggested specifically that Bank of Ireland notes might similarly be made legal tender for the exchange of Irish bank-notes.⁵

PUBLICITY

17. Incidental references have already been made to Palmer's distrust of publicity, but here again it is necessary to distinguish. What he objected to was (a) publication of the affairs of the Bank without concurrent publication of the position of all other note-issuing institutions⁶; (b) publication during periods of crisis⁷; and (c) publication of up-to-date figures.⁸ When writing to Lunell, indeed, he advocated publicising half-yearly the accounts of the Irish joint-stock banks, to enable "any erroneous system" to be promptly checked.⁹ Similarly in 1832 he conceded that publicity might conduce to the proper management of note-issues,¹⁰ subject to the provisos already listed. In practice, however, he suggested that the best security for the propriety of the Bank's actions lay in the fact that these were known to the Government.¹¹ By 1836 he is found suggesting that the best way to ensure that the new Indian joint-stock bank then proposed should abide by its "defined system previously promulgated" was to publicise its proceedings.¹² By 1840, however, he took the view that, so far as the Bank of England was concerned, publication of the accounts was useless because the only figure of any significance was the gold reserve, and few people in fact watched that.¹³ In any case,

¹ Letters, 1, para. 5.

² 1832, QQ. 97-8, 820-8.

³ 1832, Q. 646.

⁴ 3 and 4 William IV, c. 98.

⁵ 1857, p. 6.

⁶ 1832, Q. 724.

⁷ 1832, Q. 733.

⁸ 1832, Q. 816.

⁹ Letters, 3, para. 3.

¹⁰ 1832, QQ. 723-7.

¹¹ 1832, Q. 658.

¹² India, 16.

¹³ 1840, QQ. 1497, 1512.

transactions not within the knowledge of the public, such as the loan from France in the autumn of 1839, nullified the usefulness even of the figure of bullion.¹ In 1848 he further emphasised the misleading character of the entries in the Bank's weekly account "when the nature of the transactions are unexplained"²—a comment which significantly anticipates the well-known reply of the Bank of England to the Chairman of the Westminster Bank, when during World War I he claimed to understand at least the entry for bullion in the Bank Return: "Mr. Leaf, I do not think you understand even that".³ However, in 1856, Palmer was no longer averse to a weekly publication of the Bank's position, provided that the accounts were not separated.⁴ Perhaps he thought that by then public opinion was better enlightened on the significance of the return, and less likely to misunderstand it.⁵

FOREIGN EXCHANGES

18. A great deal of time was devoted in most of Palmer's examinations before the Parliamentary Committees to the discussion of the foreign exchanges. This problem finds no place in the correspondence with Lunell, except for a casual reference to a foreign drain pressing upon the Bank of England,⁶ but there are references to it in the Indian tract, and Palmer's position can be seen reasonably clearly. His arguments were based primarily on the conception that no attempt should be made to control exchange movements, since these were autonomous indices to which domestic policy should conform. Thus, he objected to the proposed Indian bank undertaking exchange transactions on the ground that this would give rise to the danger of a monopoly, which might disrupt trade.⁷ In any case, as he said to the 1832 Committee, when asked whether "by the operations of any individual, or any combination of individuals, the foreign Exchanges can be controlled for any length of time,"⁸

I should certainly say not.

So far as the Bank of England's policy was concerned, Palmer made it clear that the Court was proportioning the circulation to the foreign exchange position, not because it had been told to do so by Parliament (about which he, surely disingenuously, disavowed any knowledge),⁹ but because it recognised its sole responsibility for this as the only institution knowing "the actual state of the Foreign Exchanges".¹⁰

¹ 1840, Q. 1500.

² 1848, H/L, Q. 870.

³ Leaf, *Banking*, 4th Ed'n. (1943), p. 48.

⁴ 1857, p. 6.

⁵ It had, for example, been explained at length by Gilbart, *Practical Treatise on Banking* (e.g., 5th Ed'n., 1849, Vol. I, pp. 154-164).

⁶ Letters, I, para. 2. See p. 148, n. 11 above.

⁷ India, 4, 16.

⁸ 1832, Q. 226.

⁹ 1832, Q. 142.

¹⁰ 1832, Q. 120.

19. As regards the mechanism by which the exchange-rate could be influenced, Palmer gave the 1832 Committee a detailed explanation, which, however, was couched wholly in terms of the balance of trade¹:

The first operation is to increase the value of money; with the increased value of money there is less facility obtained by the commercial Public in the discount of their paper; that naturally tends to limit transactions and to the reduction of prices; the reduction of prices will so far alter our situation with foreign countries, that it will be no longer an object to import, but the advantage will rather be upon the export . . .

Even in 1840, though the controversy over his *Causes and Consequences* . . . had turned partly on the responsibility of the Bank's easy-money policy for excessive foreign investment in 1836,² he continued to argue as if the only remedial measure practicable was to 'force' exports, apparently of goods.³ By 1848, however, he had come to recognise the significance of capital movements induced by a differential rate of interest.⁴ But he also had a constructive suggestion to offer. The increasing magnitude of the external drains of bullion had twice forced the Bank to borrow abroad to support the exchanges, and Palmer felt that such an arrangement could advantageously be regularised⁵:

I have always considered that if the Bank of England could have a proper understanding with the principal banks in the United States, in Hamburg and Amsterdam and Paris, and could carry out their payments through negotiations upon those respective bodies, the exchange could be more easily adjusted than by the transmission of bullion backwards and forwards.

Presumably a form of earmarking?

EMERGENCY RESPONSIBILITIES

20. In normal times Palmer visualised that bank rate should always be less than market rate.⁶ Indeed, in 1848—perhaps influenced by the unfortunate consequences of lowering bank rate to competitive levels in 1844—he suggested a return to the traditional minimum of 4 per cent.⁷ It followed that it was only in times of difficulty that bank rate became operative. But while the raising of bank rate and the contraction of the Bank's issues which flowed from an adverse exchange had some influence towards reducing country banks' issues, Palmer did not believe that the Bank of England in fact exercised any real control over the latter, and therefore over the aggregate note-issues in the country. A foreshadowing of this belief can be seen in the

¹ 1832, Q. 678.

² Wood, *op. cit.*, p. 107 and the sources there cited.

³ 1840, QQ. 1469, 1473.

⁴ 1848, QQ. 2034, 2109; H/L, QQ. 1027-8.

⁵ 1848, Q. 2018.

⁶ 1832, QQ. 170, 559.

⁷ 1848, H/L, Q. 1010.

proposals for a "correspondence" in Ireland, to try to achieve "unity of action".¹ As explained by him in 1832 he considered that country bank issues were related to local opportunities, and were not to be checked by a restriction of Bank of England issues until local prices had been inflated as a result of over-issue by local banks.² In 1837 it became a main plank in his defence of the Bank of England's actions.³

21. A crisis therefore came without the Bank of England having the power—even if it felt the duty (para. 7 above)—to stop it; it came because the return of notes to the Bank to obtain bullion for export enforced so considerable a contraction of the Bank's circulation as to shake credit.⁴ But once it had come, the *raison d'être* of the Bank emerged.⁵

... if there be any advantage more prominent than another in the establishment of the Bank of England, it is to uphold commercial credit ... when that credit is seriously affected by panic or distrust.

For rendering assistance in such circumstances the Bank was peculiarly equipped, being able to act promptly,⁶ without political complications⁷ and in a way that no group of banks could have undertaken, because of the threat to their reserves which would have arisen from the ensuing inter-bank clearings.⁸ It was a consequence of this view that discounts would be granted as requisite to meet the emergency demands. In 1832, when the Usury Laws restricted to 5 per cent. the maximum rate of interest which the Bank could charge, Palmer admitted that qualitative control of discounts would be necessary even at the height of the crisis,⁹ but in principle the Bank was open to all comers,¹⁰ and once the abolition of the Usury Laws had freed the Bank's hands he relied on the rate of interest to keep demands for discounts under control.¹¹

22. It was from this view of the all-importance of the Bank's rôle in emergencies that there grew Palmer's insistence on the need for a "relaxing power" under the Act of 1844—for entrusting the Bank with the discretion to exceed the statutory fiduciary issue when emergencies arose. He made it clear that "subject to the control of Parliament" he would have discarded altogether the clause in the Act restricting the maximum note-issue,¹² on the understanding that the Bank would conduct its business as if the restriction existed, unless and until the

¹ Letters, I, para. 5. See p. 148, n. 11 and p. 147, n. 2 above.

² 1832, Q. 361.

³ Causes, *passim*; esp. 10, 34.

⁴ 1832, Q. 361.

⁵ Reply, 13.

⁶ 1832, Q. 583.

⁷ 1832, Q. 553.

⁸ 1832, Q. 586.

⁹ 1832, QQ. 158, 477.

¹⁰ 1832, QQ. 177, 477; 1840, Q. 1412-7; 1848, Q. 2028.

¹¹ 1840, Q. 1421.

¹² 1848, Q. 2082.

moment arrived for discretion to be exercised,¹ either by the Bank itself or by a member of the Government.² And in 1856 he even ruled out the last-mentioned possibility³:

I would throw the responsibility upon the Bank of England, which could always insure the convertibility of the bank-note, if not interfered with by the Government, except in periods of continued internal panic, upon all paper and credit issues.

PRIVATE BANKS

23. We may in conclusion touch briefly on Palmer's opinions about private banks. These were mostly *obiter dicta* but they exhibit some interesting changes through the years. As regards the desirability of joint-stock banks, the correspondence with Lunell contains quite a glowing testimonial to their merits—in Ireland.⁴

... the necessity for solidity ... appears to me to be better promoted by Joint Stock Banks than by individual establishments. The former ... being governed by fixed rules and regulations, and by parties having no considerable individual interest of their own to promote, are less likely to be led astray by speculative mania ... Further by the extent of the subscribed capital held sacred as security for the general transactions with the public, the highest degree of confidence and credit may, or ought to be obtained ...

Similarly, in 1836 he was ready to admit the advantages of a joint-stock bank when duly regulated,⁵ and joins issue with the promoters of the suggested Indian bank only on the scope and nature of the functions proposed for it. But by the following year he had come to the conclusion that joint-stock banks deserved encouragement only where individual capital and enterprise were found deficient,⁶ and in a moment of despondency expressed a doubt whether joint-stock banks and the Bank of England could continue to co-exist.⁷

24. Partly this was a matter of size. In a postscript to the tract on the Indian bank he adds,⁸

Since the foregoing was written, a tolerably strong proof has been afforded of the difficulty of managing a Joint Stock Bank in England with 30 or 40 branches ...

¹ 1848, Q. 2082.

² 1848, Q. 1954.

³ 1857, p. 6.

⁴ Letters, I, para. 2.

⁵ India, 3.

⁶ Causes, 47.

⁷ Causes, 50.

⁸ India, 29. The allusion is probably to the Northern and Central Bank of England, whose affairs were investigated by the Bank of England at the end of 1836, following criticisms of the bank before the 1836 Committee and an application to the Bank of England for assistance. (Thomas: *The Rise and Growth of Joint-Stock Banking*, pp. 287-290).

Partly also it was a mistrust of absentee management, to which there is an allusion in the correspondence with Lunell,¹ and others in the Indian tract.² But mainly Palmer's change of front was due to the failure of joint-stock banks to live up to "the true principle of Provincial Banking" as he had expounded it to Lunell.³ This would have required a note-issue carefully limited to a proportion only of the deposits, and the retention of "an adequate capital as security for meeting sudden and unexpected demands". He supplemented this outline in 1832 by remarking,⁴

"...credits . . . given by Country Bankers upon securities not negotiable, ought . . . to be limited to a moderate proportion of the deposits, and not made by paper money payable upon demand,"

a position which he maintained even though it was pointed out to him that the advances made by country bankers were "very rarely upon anything you would term negotiable securities".⁵ In contrast to this extreme moderation, the actual issues of private banks, during 1836 in particular, were in his view "imprudent"⁶ and made with insufficient reserves.⁷ And he particularly objected to note-issuing

¹ Letters, 3, para. 4. "Provided the different internal parts of Ireland were upon an equal footing with Belfast, there would have been no reason against *many* joint Stocks being formed and placed in various parts of Ireland, but the different character of the country exhibited such to be impracticable, and which led to the formation of *one* in the Provincial Bank with its several branches. It is the difficulty of upholding from London the credit of those branches, when the discredit of one (however absurd the cause) affects the credit of all, which appears to me to require the establishment of the Parent in Dublin."

² India, 12, 29.

³ Letters, 1, para. 4: "I will now proceed to state what appear to me to be the general Principles by which a Provincial Bank ought to be managed:—

1st. The true principle of Provincial Banking is that which limits the issues upon discount to the amount of a given proportion of the deposits and possessing an adequate capital as security for meeting sudden and unexpected demands.

2nd. The amount of discounts should be confined as much as possible to paper originating in true transactions, passing property from hand to hand.

3rd. Issues upon credit might be made to a *limited amount* and for *limited periods*, with part of the deposits of the Bank, or if they were wholly employed in mercantile discount temporarily with a small part of the reserved Capital, but an advance from this latter source, should be made with great discretion.

4th. An excess of issue is exhibited by a return of Notes upon the Bank for Gold or Bills upon the Capital of the Kingdom to a larger amount than it issues for Bills received upon the Capital and then it is that contraction becomes necessary.

5th. Such an excess of issue would not be likely to exist in Ireland unless made upon unsound principles and inconvertible securities to a large amount exceeding the deposits and Capitals of the several banks thereby affecting the general prices of the Country diminishing its exports and increasing its imports.

6th. So long as a Bank is so managed as to retain its credit with the public and to be willing and ready at all times to pay its Notes in Gold or to give orders upon the Capital of the Kingdom for any amount of Notes returned upon it such bank cannot be said with propriety to have issued in excess, or mismanaged its concerns, on the contrary as it strictly fulfils its obligations of the above kind, the more liberal its conduct towards the public the greater is the national benefit from its establishments."

⁴ 1832, Q. 900.

⁵ 1832, Q. 901.

⁶ Causes, 34.

⁷ Causes, 39.

joint-stock banks even outside the area 65 miles around London,¹ an area which he had been careful in his "plan of action" to reserve for the Central Bank.² However, in this as in other directions, Palmer became less dogmatic with age, and in 1848, when asked: "You would permit country banks to issue notes without restrictions?" he replied,³

I think it is immaterial, provided there be sufficient security for the issue itself.

But in reply to a further question he was not prepared to say what that security should be.⁴

25. The purpose of this essay has been to give a rounded picture of the opinions of a particularly expert and enlightened student of banking in a classical quarter of a century. No attempt has therefore been made to discuss the provenance of his ideas, many of which were common form in his day. It is to Palmer's credit that, despite the minor variations noted, his evidence to the various Committees exhibits a consistency which can only partly be accounted for by the fact that—according to his first letter to Lunell—it was not until he was about 45 that he began to devote a serious consideration to monetary problems, doubtless in preparation for his term in the Chairs. To a large extent the views which he adopted were justified by events. Posterity will probably rank as his best contribution to practical banking his insistence on the need for an unfettered lender of last resort and on the significance of Bank Rate in controlling demands for emergency credit. But even the 'Palmer Rule' which he espoused but probably did not invent⁵ was at least an improvement on previous attempts at a rule-of-thumb guide to banking policy. He could not accept the idea of the Bank of England having continuous responsibility for the whole system, partly perhaps because he was too good a democrat, but mainly because he doubted the efficacy of the controls which the Bank could exercise. On the other hand, the system of country banking was in his lifetime largely reformed, along lines which he had championed. During the 27 years of his active spokespersonship, therefore, he lived to see much of what he fought for accepted and little that he denied achieved.

¹ *Causes*, 7. This had been legalised in 1826.

² *Letters*, 1, para. 5 (p. 147, n. 2 above). [65 English miles = 50 Irish miles.]

³ 1848, Q. 1968.

⁴ 1848, Q. 1969.

⁵ For a conjectural history of the 'Rule', see my "The Bank and its Treasure," *Economica*, May, 1940.

Relaying the Foundations

By WILLIAM J. BAUMOL

PROFESSOR SAMUELSON'S long-awaited work on economic theory¹ has at last arrived. On first perusal the book is less exciting than it might have been had it appeared several years ago when first written as a Ph.D. thesis, for the Hicksian leitmotif, which since 1939 has become familiar to our ears, is constantly heard. Yet we cannot therefore dismiss this work—not only because its results were independently obtained and are often more sophisticated in form and content than any which have appeared before, but because, on examining the book more closely, one finds in it a great deal more than this suggests. The author's acuteness of insight and clarity of exposition on points of detail, together with his treatment of many points long subject to misunderstanding and unnecessary controversy, make the book one no theorist can afford to be without. Indeed, so wide a range of theoretical problems is touched upon and so many points conclusively analysed, that this applies to Professor Samuelson's *Foundations* more than to any other recent book.

Though there is some attempt at order it is not entirely successful, and more chapters than the author admits are collections of his miscellaneous thoughts and brilliant analytical sorties lumped together on the basis of some tenuous established common characteristic. The difficulty is partly that Samuelson occupies himself with no single theme, and yet does not propose to go to the other extreme and write an exhaustive *Principles*. As I have already suggested, the nearest there is to a central theme is the discussion of the subject matter of *Value and Capital*. However, I do not propose to devote much of this review to that aspect of the work, partly because Professor R. G. D. Allen is focusing his attention there in his review of the book, which is to appear in the *Quarterly Journal of Economics*, but more because I feel that some of the most solid of Samuelson's contributions are in other fields on which his heaviest technical artillery is not always trained and which are consequently apt to be neglected.

It must be remarked, to begin with, that the appendix on difference equations (which in fact deals as much with differential as with difference equations, and with operator equations in general) is for many purposes just what the doctor ordered, and should prove invaluable to the student of dynamic theory. The other mathematical appendix which brings together the most directly relevant theorems on maxima and minima should also be very useful. Professor Samuelson's mathematics, however, are not confined to the appendices, and this will no doubt continue to frighten off many readers. Whatever

¹ Paul A. Samuelson: *Foundations of Economic Analysis* (Harvard Economic Studies No. 80), Harvard University Press, 1947, \$7.50.

the merits of this expository decision, I suspect that one will be left with the feeling that it is occasionally overdone here. And whereas the elegance of most of the derivations is often a thing lovely to behold, the standard is spotty. While in some cases things are neatly worked out with the aid of algebra where the use of the calculus was formerly held indispensable, in other cases matrices are employed where a more widely-familiar technique would have served as well. Ultimately I suppose the complaint is that Professor Samuelson is too unwilling to adapt himself to the needs and limitations of his potential readers. There are many slips and typographical errors which increase the reader's difficulty, many of which are not corrected in the second printing.¹

All this will not serve those who are completely or almost completely innocent of any mathematical technique as an adequate excuse for failure to read any part of this book. Large sections of it contain either no symbolic reasoning at all or arguments employing only elementary algebra. Indeed some of the most striking of Samuelson's contributions can be found in these sections.²

I should now like to turn to an examination of some of the points considered in the book. Some of these which are worth recapitulating for their own sake where it can be done briefly, I shall so summarise—these are details I consider of the utmost importance, and some of which are apt to be neglected in discussion of this work. The order is the order of appearance in the book, and since these are mostly unconnected points lifted out of context the articulation is necessarily poor.

¹ It may be noted in passing that there is a minor error in the derivation of "the Generalised Le Chatelier principle". There should be no minus sign before the numerator in the last line of (43) on page 38, as careful application of the cited "well-known theorem on determinants" will show. The conclusion follows nevertheless since the denominator must be negative, not positive, as stated, and this follows from a careful reading of the equation in the appendix referred to in the footnote. I am indebted to Mr. Graaf for this point.

² As a result of several requests I present with considerable hesitation a rough list of such sections in the following. It is, of course, in no sense authoritative, and its details may justly be questioned:—

- pp. 3-6, notes on method;
- 7-10, on equilibrium systems and comparative statics;
- 19-23, more notes on method;
- 78-80, indeterminacy in purest competition (equilibrium with constant marginal private costs);
- 81-5 and 87, on external conditions of equilibrium (Eulers Theorem, linear homogeneous production functions, etc.);
- 107-12, meaningful theorems on consumer's behaviour (algebraic);
- 122-4, uncertainty and the demand for money;
- 125-6, on the concept of elasticity;
- 144-63, index numbers (pp. 156-62 are algebraic);
- 183-5, a note on complementarity;
- 187-8, Hicks' average period, etc.;
- 189-95, constancy of marginal utility of income (money);
- 195-7, why the notion of consumer's surplus is superfluous;
- 203-53, on welfare economics;
- 257-8, the stability of equilibrium and dynamics (the correspondence principle);
- 311-7, statics and dynamics (classification);
- 333-5, concepts of stability;
- 335-42, on techniques of business cycle analysis.

There are spots of symbolic argument in some of these, but the reader can usually skip them and accept the verbal conclusions without losing track of the argument.

Professor Samuelson's statement of his methodological predilections displays a healthy and vigorous regard for empiricism. His work is not in any sense empirical, but his insistence on meaningful premises and theorems in the sense that they must involve some restriction on observable phenomena, and that their negation involves no logical contradiction, so that they may conceivably be refuted by observation, are surely in this vein. Too much theoretical work in economics, he suggests, does not satisfy this requirement; i.e., it is purely tautologous and hence ultimately merely taxonomic. In some cases, I may perhaps add, these systems of classification have grown so complex that it is not at first view apparent that they tell us nothing about the real world.

As a substitute for this type of reasoning we are offered three categories of meaningful assumptions in economics (pp. 21-3): those postulating maximising behaviour, those assuming stability and finally those making reference "to alleged technological and psychological laws held to be plausible on *a priori* grounds". Here Professor Samuelson chooses to throw in with current orthodoxy and base the greater part of his arguments on the maximum and stability assumptions. True, there is some obliquity in that he even distinguishes between the two. Indeed, it is one of his main points that whereas analysis of maximising behaviour (say profit maximising) need involve no more than comparative statics, the analysis of stability requires recourse to dynamic considerations, however rudimentary. For the question of stability of a situation involves, once the situation is departed from, the question, how do we proceed from here—that is, do we or do we not head back? And the discussion of the ensuing motion must by definition fall under the head of dynamics.

But the approach is nevertheless conservative in that it is ultimately on some sort of combination of stability and maximum conditions that most recent theoretical systems are based. It is for this reason that many of the major conclusions will fail to astonish the reader. Indeed, I suspect that Boulding may not be altogether wrong when he argues in his review of this book (*Journal of Political Economy*, June, 1948) that these premises have been worked nearly to death. Perhaps more frequent recourse to "alleged technological and psychological laws" is indeed called for. These were at one time more popular and provided the foundation for several dynamic systems including that of the classicists, and are to-day being put to use in the Harroldian dynamics. Indeed, is not the founding of the 'Keynesian revolution' on such an approach an indication of its rich potentialities?

After the methodological discussion Samuelson proceeds to develop a "calculus of qualitative relations" with the aid of which he very neatly demonstrates that in a system involving mutual interdependence of variables, knowledge of the direction of change of the relationships is usually insufficient to yield conclusive information about the dependent variables. For example, in a Marshallian diagram if we know only that the supply curve is negatively inclined and the demand

curve shifts upwards, will sales rise or fall? In other words, qualitative conclusions often require quantitative premises. In the simple example the problem is easily resolved by an obvious stability argument, but we may nevertheless conclude with Samuelson that "in a problem of any complexity involving a number of variables, intuition is a poor guide".

In the course of the argument the author pauses to demolish the view sometimes held that with constant private average costs competitive conditions may break down since one firm could then take over a large proportion of, or indeed the entire industry, and then proceed to rig prices. But, it is pointed out, while any single firm may well be able to expand thus in such conditions, it can still never charge more than the competitive price, for potential rivals having the same constant costs would then be able to undersell it and drive its product from the market.

Here Samuelson turns to the much-discussed problems connected with the exhaustion of total product by payment of marginal product to factors under perfect competition. He maintains that all attempts to prove this proposition with the aid of Euler's Theorem and an assumption that the production function is linear and homogeneous miss the point completely. If there is no profit left after a competitive firm pays its factors it is only because competition through freedom of entry has served to eliminate profit, and not because of the nature of the production function. Competitive distribution is then 'just' in J. B. Clark's peculiar sense merely because we assume it to be so.

I must admit that while this analysis does dispose of much of the argument about this point, I am not convinced that it provides an answer to Wicksteed's question, nor am I certain that his question means no more than Samuelson's view implies. Employing real terms, we may ask the question thus: given that the remuneration of factors in terms of their output is in a certain way related to output (i.e., it is their marginal physical product), will the entire product be exhausted in the process? Conversely, what do factors then have to produce in order to produce neither more nor less than their total remuneration? Here the form of the market is relevant only indirectly in helping to determine the relation between remuneration and output, and the proper answer to the question is that the desired result will obtain when the production function is homogeneous of first degree. Moreover, as Mr. Hahn has pointed out, the zero profit argument breaks down altogether when (as is usually the case) we include some sort of 'normal profit' in costs.

Samuelson, I think rightly, disparages the value of the widespread intuitive conviction that a production function must necessarily be linear and homogeneous. In the sense that the statement is (obviously) correct it can be proved true by a trivial argument, and is indeed itself trivial. Even if we (say) double all the obvious factors of production and output does not double, it must be true by definition that something has not changed in such a way as to maintain the efficiency of the factors at the same level as before. We can define this undetermined

something to be a factor and say that the trouble is that this factor has not been increased in proportion with the others. It is for this reason that Samuelson suggests we can get further by considering only 'inputs' rather than factors in connection with the production function where this term "be confined to denote measurable quantitative economic goods or services".¹

In the next chapter Samuelson argues that the content of the received theory of consumer behaviour is rather limited.² Indeed he deduces its meaningful conclusions (except for integrability) elegantly from the following two premises alone, thus dispensing even with indifference maps:

1. That the demand functions are single valued, i.e., that to every set of prices there corresponds an unique set of quantities demanded; and

2. That if X_1 represents a set of goods bought at prices P_1 and X_2 a set bought at prices P_2 , then if at prices P_1 a consumer could have bought X_2 even more cheaply than X_1 (so that he presumably prefers X_1 to X_2), then at prices P_2 , X_2 must still be cheaper than X_1 (what would induce him to buy X_2 otherwise?).³

The simplicity of these assumptions leads Professor Samuelson to remark that, "Many writers have held the utility analysis to be an integral and important part of economic theory . . . I wonder how much economic theory would be changed if either of the two conditions above were found to be empirically untrue. I suspect, very little."

¹ It is not true that if the production function so defined were "really homogeneous, marginal cost would always be constant" (p. 85). Suppose that in some process we employ two quantitatively-measurable inputs, X and T for which there are no substitutes, and that one of these, T , is an unique indivisible meteoric rock so that for the moment its quantity is fixed. Yet with the aid of the engineers we may compute a production function which can be linear and homogeneous, say the product $P = x\alpha y(1 - \alpha)$, where x is the quantity of X , y the quantity of T which is fixed at a constant value, y_0 , and α is a positive constant less than unity. If R_x and R_y are the respective

prices of X and T , the total cost, C of output P is given by $C = R_y T_0 + R_x T_0 \left(\frac{\alpha-1}{\alpha}\right)^{\frac{1}{\alpha-2}}$ and $\frac{d^2 C}{dP^2} = \frac{1-\alpha}{\alpha^2} R_x T_0 \left(\frac{\alpha-1}{\alpha}\right)^{\frac{1}{\alpha-2}} P^{\frac{1}{\alpha-2}} \neq c$. I admit, of course, that this is a degenerate case, but the argument can easily be generalised to cover any case of indivisibility and it indicates that the denotation of "input" needs further, and in my opinion illegitimate, restriction for Samuelson's result to follow.

² In this chapter Professor Samuelson also affirms his adherence to the Hicks-Allen argument about the non-measurability of utility, and agrees that there is no conceivable empirical test which enables one to choose among the cardinal indices consistent with any given set of preferences. The Morganstern construction (Von Neumann and Morganstern, *Theory of Games and Economic Behavior*, pp. 15-31 and pp. 617-32, revised edition) proposing a measure of utility (not discussed by Professor Samuelson since it appeared after his book was completed) is not in contradiction with this view. Morganstern has merely proposed a convention whereby such a measure may be constructed; but it is ultimately no more than a convention and can have no claim to uniqueness. Moreover, whatever the Morganstern measure does apply to, it is not exactly that which utility is ordinarily taken to denote, for the measure cannot take account of utility of gambling or "disutility" or risk *per se*.

³ The bracketed remarks are not, of course, intended as "proofs"—we obviously cannot base a legitimate derivation of a premise on the theorems we seek to derive from it. The remarks merely indicate that the second premise follows from the standard analysis.

Before leaving the theory of consumer behaviour the author again pauses briefly to destroy an oft-accepted argument by pointing out that while it may be true that the difference in liquidity enables interest-bearing securities and non-interest-bearing money to co-exist, it is not true that the disappearance of liquidity differences necessitates the disappearance of interest. It is conceivable that money might disappear instead, the public simply refusing to accept it as a substitute for profitable securities.

Samuelson next tackles the use of elasticity coefficients, pointing out (as already indicated by Hicks) that they need not be dimensionless, and that even where they are they do not eliminate arbitrariness in measure; for though the arbitrary unit of measure will not then influence the result, the zero point which is often also arbitrary will do so. Thus, as Wicksteed pointed out, the value we take for supply depends on what we class under the head of reservation demand, i.e., seller's demand for his product (does this include demand for stocks?). But when computing elasticity of supply we consider the proportionate change in supply, i.e., the ratio of the change in supply to initial supply, and this value, of course, will depend on the figure we take for initial supply, i.e., on what we choose to classify as reservation demand. Moreover, not only does the elasticity coefficient fail to eliminate arbitrariness, but in many cases it is actually a nuisance. How many beginning students have become hopelessly confused by its queer behaviour, and how much time and effort is devoted to its explanation—and how many quasi-mathematical papers have three-quarters of their space devoted to a painful translation of simple formulæ into elasticity terms? Samuelson goes on to show that the elasticity expression, through its lack of symmetry, serves rapidly to obscure and increase the difficulty of mathematical reasoning as soon as we deal with a slightly more complicated system.

The discussion of the index number problem is a thing of particular beauty. Again Samuelson argues that most previous discussions have missed the main point. The fundamental index number problem "is that of determining merely from price and quantity data which of two situations is higher up on an individual's preference scale"¹ (pp. 146-7). Thus the cost of living index number is ordinarily required to show how much more or less money is needed in a changed price situation in order to attain the same satisfactions as initially, and this can easily be handled once the preceding problem is solved. Similarly, a quantity index can be readily constructed on the basis of the information demanded. Samuelson then argues that the required information can never be obtained with complete accuracy, and that while we may sometimes be able to argue that one situation is preferred to another, we can never on the basis of price and quantity information

¹ It has been suggested that the requirement that only price and quantity data be used is unnecessarily restrictive. For example, data as to family budgets must also be admitted, and this may considerably advance the analysis.

alone say that the consumer is indifferent between them. The result is a range of indeterminacy which is lucidly described, and from these arguments there are derived various upper and lower limits within which particular 'true' index numbers must lie, including those which indicate how close we can conceivably get to the desired information.

The impossibility of an "ideal index number" is also nicely demonstrated, the argument being simply that any index number can only give results which are invariably correct for specified types of indifference maps, different types of indifference maps corresponding to different index numbers; for what is required is that two points on the map corresponding to the same value of the index number lie on the same indifference curve; so that no index number can give correct results for all possible maps. The conclusion of this discussion is that the form taken by index numbers besides being unnecessarily clumsy involves a roundabout and deceptive way of going about things, and that the direct approach through indifference analysis (and with the use of direct comparisons rather than ratios) is to be preferred.

Samuelson goes on to reject the concepts of complementarity and consumer's surplus as redundant (to which I am again inclined to remark 'amen'), arguing that there is nothing that has been demonstrated with their aid which cannot be demonstrated without them, and that their use has even led to errors of reasoning by unnecessarily complicating the issues.¹ He also rejects the notion of constancy of marginal utility of money (income) which, if taken literally, he shows to lead to results which are in conflict with experience. He also claims that the 'order of smalls' argument is inapplicable since, while for a small change in quantity purchased the change in marginal utility of money may be small, so will any change in consumer's surplus, so that the relative change may still be large, and hence the change in marginal utility of money cannot validly be neglected.

I suspect, however, that this is not quite the way Marshall meant the argument to be viewed. It should not be made to depend on a small change in quantity bought but rather on the small proportion of total expenditure involved in a particular purchase. If a commodity is such that a consumer *never* considers spending a large proportion of his income on it, (if we believe in measurable marginal utility), it is, despite Samuelson's strictures, arguable though not proved that the effect on marginal utility of money of the purchase of an extra unit is small relative to the change in the marginal utility of that commodity.

The chapter on welfare economics provides an excellent survey of much of the discussion in this field. I shall confine myself to one

¹ Samuelson also points out that the Hicksian verbal and mathematical definitions of complementarity are not consistent with one another and, incidentally, indicates some of the limitations of the Hicksian average period of production. I may remark in this connection that most of the literature on the average period can perhaps be rejected as a misguided attempt to arrive at an "ideal" function to serve as a substitute for something which is essentially a functional. This is not formally unrelated to the necessarily futile search for the "ideal index number". On this point cf. Edelberg's unpublished Ph.D. thesis (London).

comment on the welfare analysis. In formulating the social welfare function Samuelson is content to assume, though with explicit reservations, that each person's welfare depends just on what he himself consumes, thereby neglecting the possibility of so-called external economics of consumption. Yet it is my view that by neglecting these (which involve much more than the obvious Veblenesque cases ordinarily considered) we permit some of the most interesting problems of welfare economics to slip through our fingers.

Thus, as a consequence of this neglect, Samuelson accepts, though guardedly, the argument widely proposed among economists that it might be socially beneficial to permit free sale of their ration coupons by those not desiring to use them (p. 171), this on the ground that both parties to such a voluntary exchange must benefit by it if they are to be induced to engage in it at all. But this view neglects the possibility (which I believe to be very real) that less affluent persons would suffer considerable annoyance at the prospect of the wealthy being thus able to augment their rations in times of shortage, and that while they might sell their rations *once such a free market were established*, the former might still prefer to prevent such supplementation of the consumption of the rich altogether. Is it not for a similar reason that the purchase of replacements by affluent conscripts is no longer permitted? I suggest that anyone who thinks this argument is far-fetched consider the probable public reaction to such a proposal. Moreover, there is the additional danger that some persons might be led by such a scheme to sell rations to an extent deleterious to their health, and this (especially in a world where military preparation is valued highly) might have marked external diseconomies.¹

As so often happens, the dynamics provide the most disappointing part of the book. Again we have asked for bread and are offered stone. The dynamic implications of stability to which I have already alluded are discussed and illustrated in some detail, and it is shown in the light of this that the Hicksian stability conditions are in general unsatisfactory. A neat discussion of definitions and classification of dynamic theory into types is also most welcome, but for the main part the discussion is of the mathematical apparatus necessary to handle some particular types of dynamic theory. While this may prove exceedingly helpful and stimulating to further work, it is by itself not very satisfying. Indeed, in his conclusions Professor Samuelson indicates that he himself is well aware of this.

But the important questions, and here I shall follow the custom of using a review article as a peg on which to hang my own hat, are, why has the analysis failed to provide something essentially satisfying, and indeed how can one proceed in dynamic theory? It is my feeling that in process analysis the model builders have at least partly led us on to the right track. By process analysis I mean, of course, the

¹ Note that I am *not* arguing that people are not competent to decide the extent to which they should devote themselves to their health in-so-far as it affects themselves only.

investigation of immediate causal dynamic relationships as opposed to the broader problem of historical dynamics. It should also be noted that I use the latter term in the more ordinary sense and not in the way Samuelson defines it.

Before I can expand this statement it is necessary briefly to consider the purposes which lead us to attempt dynamic analysis at all. It is only in the light of these that the necessarily dry methodological points being considered make any sense. I should say that a dynamic model should be able to satisfy two criteria. It must involve a sufficiently simplified representation of reality to be manipulable while not doing excessive violence to the facts. Moreover, it must enable us to predict, not in the obvious forecasting sense but in the sense that a relationship between a stated event and the circumstances which preceded it must be established. Prediction in this sense implies an ability to prognosticate only if sufficient information about the past is available.

Now, I think it is almost a commonplace to remark that reality may be of a sort as to make the attainment of such an analysis practically impossible. It is only where a happy accident provides a situation sufficiently simple that we can hope to construct a dynamic system fulfilling these requirements. Thus there is little guarantee that any approach we attempt can give satisfactory results at all until it is actually tried.

Yet our aims do suggest something in themselves as to how we should go about our analysis, for the manipulable simplification we are seeking implies the use of some sort of model. It is for this reason, I believe, that the vogue favouring the use of dynamic models can claim to have some solid methodological foundation. Where I do suspect the model makers have gone astray is in the multiplicity of constructions they have offered us. The tendency to build a different system which serves merely to illustrate each individual point that happens to be under consideration leaves something to be desired. Instead of telling us about a simple world which is very much like our own the method presents us with a large number of little worlds, each of which has its homely moral to tell.

Ultimately it may be found much more useful to take some model as basic and to keep adding to it and modifying it in such a way as to include successively more of the observed characteristics of the economy. The approach is perhaps illustrated, though only at a very primitive level, in the modifications of Professor Samuelson's multiplier acceleration principle model, which I have proposed in my article to appear in the *Economic Journal*.¹ It may be noted that in the last analysis almost any theoretical system comes to no more than a model since it must always abstract from some of the complications apt to be encountered in practice. This suggestion is thus hardly revolutionary. It would only indicate that we have perhaps been wasting our time worrying too much as to the proper point to start from, and spent too little time

¹ Cf. also L. A. Metzler, "The Nature and Stability of Inventory Cycles", *Review of Economics and Statistics*, 1941.

in actually starting. I cannot, of course, deny the formidable mathematical difficulties which arise almost at once when the model grows more complex.

In the case of historical dynamics the main fault seems to be that very little has been attempted at all since the elaborate structures presented by the classicists and by the Marxists. The historical approach also involves the use of the model based on "alleged technological and psychological laws",¹ but here the abstraction must be considerably more heroic—of the order of magnitude of the Malthusian hypothesis. And it is no doubt for this reason that few modern economists have been willing to make the attempt. For one is necessarily much more exposed to error—great error—and the distance one can advance under the reassuring protection of tautology is exceedingly limited.

But the results are apt to be of as magnificent a cast as the assumptions, and sometimes more interesting for policy than the relatively pedestrian conclusions of process analysis, although this is apt to be exaggerated in the light of the feebleness of most of the results that process analysis has so far been able to obtain. Yet I am very much inclined to join Harrod in deploring the departure from the classicists' approach to dynamics, although I am not certain that his approach may be adequate to fill this gap.

We are now in a better position to evaluate Samuelson's contributions to dynamics, for at least we now have some idea of what we are looking for. The most immediately interesting of these—the dynamic implications of stability—is perhaps apt to prove one of the less important in the long run, at least for our purposes. For, as Samuelson himself points out, the dynamics involved may be of the most rudimentary sort. I think his presentation of the tools of analysis, the difference equation and the slightly more general material on functionals as well as his discussion of the difficulties which arise once we abandon the assumption of linearity, may ultimately prove invaluable for process analysis, although this is much less likely in the case of historical dynamics where the premises required seem to be of a sort much less amenable to detailed formulation. How useful these tools will in fact turn out to be can only be judged *ex post*. But one must none the less be grateful to Samuelson for adding so much to the equipment on hand.

Taken as a whole, we may conclude that *Foundations of Economic Analysis* is a very welcome book and one which may prove of inestimable value in future work. Indeed, I believe that it will come to be even more highly regarded with time. And while Professor Samuelson has not sought to re-plan the foundations completely, he has certainly succeeded in getting rid of unnecessary passages and in greatly increasing the general tidiness.

¹ It should be noted that besides the three meaningful bases for economic theory proposed by Samuelson, of which this is the third, there is another possibility whose use is not unknown in the natural sciences and which I suspect may yet prove useful in economic theory—namely the employment of a hypothesis so complex that no intuitive justification for its use is available, and yet with which one can successfully predict in the sense in which we here use the term.

Book Reviews

✓ *Planning and The Price Mechanism: The Liberal-Socialist Solution.*
By J. E. MEADE. George Allen & Unwin Ltd. 1948. 125 pp. 8s. 6d.

There is a great deal to be learned from this analysis of our economic troubles, but its main contribution to their solution may yet lie in the example set by its temper. The issues of Socialism have caused more disruption in our century than the religious wars have done in their age. Yet the subject is treated here with perfect candour and complete confidence in the reader's good sense and open mind. A mine-field of acerbities is quietly turned into peaceful arable land.

The survey ranges over the measures required to meet excessive or deficient monetary demand, to restore the balance of payments, to distribute incomes more equitably and to reduce the iniquities and wastages of monopoly. Though most of the policies in question have been discussed at one time or another before, much new light is thrown on them, particularly by the imaginative illustration of the difficulties involved in some suggested forms of State intervention. Very illuminating is also the analysis of trade union bargaining, which lends new emphasis to the conclusion that residual unemployment cannot be reduced to an otherwise possible minimum, unless the Trade Unions will keep wage demands within the range of increased productivity.

Yet I think an objection ought to be raised to a rather important point. Professor Meade says that private enterprise cannot work fruitfully where there is a wide divergence between the profit motive and the service of the community and that such enterprises should be socialised. Then he adds: "this is, of course, only the beginning and not the end of the real difficulty. A means must be devised for ensuring that when socialised, such industries are effectively run in the interests of the community". But why should we then move in this direction at all? No reason is given why the difficulties emphasised by the author should be more easily surmountable than those of controlling private enterprise in the public interest. A hope is expressed for a new breed of managers for socialised industries in whom professional pride will replace the profit motive and who will be guided by scientific principles of pricing and costing. But, of course, professional pride plays a part also in private industry and we would like to know why nationalisation should improve the possibilities of breeding such pride. It is also questionable how far pride can replace the profit motive at all, and whether the scientific principles of pricing and costing are not more than the theoreticians' fancy and could in fact form a reliable basis by which to measure professional achievement. In any case, does the answer to these two questions depend on whether ownership is public or private?

Socialisation consists in the financing of the socialised enterprises through public channels and the appointment of their staff by the

public authority. This offers no obvious clue to why managers of socialised companies could be controlled by methods different from those available for the control of managers of privately owned companies. This question must be clarified by analysing the administrative problem involved, before recommending nationalisation as a remedy for the shortcomings of private enterprise.

MICHAEL POLANYI.

The Location of Economic Activity. By EDGAR M. HOOVER. McGraw-Hill Book Company. The Economics Handbook Series. New York, Toronto, London. 1948. xv + 370 pp. \$3.75.

This is the first volume of a new series of books which is intended to cover economic subjects not yet treated by the usual textbook. It was certainly a sound idea to start the series by presenting a subject which—at least in English-speaking countries—has not yet attracted the attention it deserves: the spatial aspect of economics.

Written as a textbook, the book under review is neither merely analytical nor merely descriptive. The author tries to combine both aspects. Some criticisms of the theoretical treatment, however, may support the present reviewer's opinion that the descriptive side of the book is the better.

The four parts of the work are preceded by an introduction, which presents the plan of the book and includes a sketch of the general interdependence of locations. The latter, however, is too short to give a complete picture of the theoretical implications.

In presenting the static approach to the subject in the first part, the author is very anxious to avoid technical treatment. When, for example, he comes to the problem of the point of minimum transportation costs for a single firm, he takes only the case of one source of raw material and one market, the latter being tacitly assumed as a point. He could have expressly neglected for the moment the economics of long hauls (which he stresses very much), in order to demonstrate the case of more than one raw material source and more than one market spot by reference to the mechanical model, just to show in what direction the solution can be found in more complicated cases.

The influence of transport costs on the locational pattern of industries is explained in the conventional way on the basis of market or supply areas which, as the analysis runs on rather realistic assumptions, have not the shape of hexagons as in pure location theory.

The author's anxiety to avoid the general equilibrium approach may be justified for pedagogical reasons, but he should have added some remarks pointing out the limitations of the partial analysis and the methodological grounds for the respective assumptions. When, for instance, after an explanation for the reasons for spatial differences in the costs of production, the producers' choices of location with respect

to them are analysed, the reader is assured that the individual "enterpriser" seeks to minimise his processing costs. But this is true only on the tacit assumption that demand is given and equal at every location; for then only is the location of minimum costs identical with the location of maximum profit. (And this or, more exactly, the location of maximum utility, is the rational producer's aim.) For in an interdependent spatial system demand changes from location to location. To find a particular producer's most profitable location each site had to be investigated with respect both to supply and demand conditions. This makes an exact solution in practice impossible. The point of minimum transfer and processing costs can be an aid only in the process of trial and error; and it is by trial and error that the tendencies towards a general spatial equilibrium come into action in reality. A few remarks in this direction would have been valuable to the student and even to the informed general reader. For when the author explains land-use competition in the following chapter the reader must surely be puzzled by the unmotivated change in the producers' minds. They now are assumed to look for the most "profitable combination of circumstances". The influence of demand and hence the problem of interdependence which try to creep in via the most "profitable combination of circumstances" are hidden for the non-informed reader behind the iron curtain of the term "ceiling rent", which the producer is assumed to have in mind. It is the maximum rent that each producer can "just afford to pay for the privilege of occupying any site" (p. 90).

But when the author comes to the influence of the labour market on the location of economic activities, his producers no longer seek the most profitable combination of circumstances but again are "interested essentially in low processing costs" (p. 103), but this is formulated not as an assumption but as a statement of fact. The word 'essentially', it is true, makes this statement formally correct, but, as a whole it must confuse the reader, who does not know that the demand side, and hence the interdependence, is to be excluded thereby.

In the last chapter of the first part where the author explains how the economic structure of communities is determined by the inter-relationship among the locational patterns of various industries, it would have been better to have used the terms agglomeration and deglomeration (as introduced by Professor Alfred Weber)¹ instead of concentration and decentralisation, which are also used for the different phenomenon of capital integration.

Locational changes and adjustment are the subject of the second part of the book, which may be a valuable starting point for the development of a dynamic theory of location and space. While seasonal and cyclical changes and their transmission throughout the whole

¹ Alfred Weber: *Über den Standort der Industrien*, Tübingen, 1909, translated by C. J. Friedrich as *Alfred Weber's Theory of the Location of Industries*. University of Chicago Press, Chicago, 1928.

spatial system are discussed very briefly, structural and secular changes are treated extensively. A very interesting diagram is presented to demonstrate the trend towards a more equal interregional distribution of economic activities in the U.S.A. prior to 1940. As this seems to have some theoretical significance it demands a theoretical explanation, but the treatment of this problem is unfortunately on the descriptive side. In the following chapter, however, where the author deals with the locational effects of technological progress, much can be found which is useful to explain this trend; but he never refers to it again. In reading this part of the book the reader should distinguish carefully between the different meanings of the terms concentration and decentralisation (apart from the objection against them raised above), for though the author in the introduction is aware of the danger of confusion he sometimes uses these terms without the necessary qualifying adjectives. He deals with:—

- (a) interregional concentration (or decentralisation);
- (b) intraregional concentration (or decentralisation);
- (c) urban concentration (or decentralisation). (The latter is the same as suburbanisation);
- (d) plant concentration (or decentralisation), *i.e.*, production in fewer and larger or more and smaller plants.

In the concluding chapter of the second part the problems of adjustment to all those changes are discussed with special reference to three types of "problem areas":—

- (a) "Backward areas", which have failed to keep up with the trend of economic progress. Their 'problem' is industrialisation.
- (b) "Stranded areas," which have lost industries by emigration due to depletion of resources. Their adjustment depends upon the flexibility of factor prices in them.
- (c) Urban 'blighted' areas around the city core of large towns, which suffer from the suburbanisation process. The slackening of population growth and the vertical expansion of the city core have diminished the rate of lateral expansion of the latter into these areas. Hence there is not sufficient compensation for the losses caused by the suburbanisation process. Falling land values and slums are the consequences.

In part three the locational significance of boundaries as barriers to trade, factor movements, payments, and co-ordinated area administration is discussed. The author attempts to follow the lines of Bertil Ohlin and August Lösch in integrating the theories of location and international trade, to free the latter from the usual

assumptions of factors being completely mobile within, but completely immobile between, the countries and transfer costs being non-existent within countries (which amounts to regarding the countries as single locations).

His explanation of the spatial exchange mechanism between different monetary systems is rather insufficient. After a presentation of the interregional balance of payments mechanism he only adds that the "basic equilibratory tendencies already mentioned are still present" when a payment from one monetary system has to be converted into another, "but the situation is less simple. The processes of adjustment are likely to include an additional variable: fluctuations in the exchange rate" (p. 233). As this does not tell very much the interested student should not fail to read the thorough study of these problems in Lösch's book.¹

The fourth part deals with public locational policy. Government and public authorities have an increasing direct and indirect locational influence and hence increasing responsibility.

According to what is regarded as the crucial difficulty to be overcome, the author sees three main ways for locational policy:—

- (1) If individual insecurity and social waste of locational adjustment are to be avoided and technical progress is desired, a policy for locational flexibility, fostering mobility of labour, capital, and commodities will be appropriate.
- (2) The alternative approach is a policy of locational stability, avoiding those changes which are not socially desirable, conserving natural resources, protecting existing locations against rapid changes, favouring a diversification of industries instead of regional specialisation, and creating balanced area economies in which necessary adjustments are small and easily achieved.
- (3) If the main problem is national security and power in a warlike world, dispersal of industry and population is the appropriate policy.

This concentration on criticism of the theoretical side and some weak points of the exposition may give a wrong impression of the book as a whole; it must be said that the descriptive side is most brilliant. Numerous statistics, graphs, and maps are used to illustrate the text and the text itself contains many examples. The author always has his feet on the ground, and the reader will feel that he is being introduced to a subject the further development of which may well throw new light on old problems.

HERBERT GIERSCHE.

¹ August Lösch: *Die räumliche Ordnung der Wirtschaft*, Jena, 1940 and 1944. This book will soon be available in English translation.

Ordo: Jahrbuch für die Ordnung von Wirtschaft und Gesellschaft.
 Edited by WALTER EUCKEN and FRANZ BÖHM. Helmut Küpper
 Verlag, Bonn. 1948. xi, 340 pp.

That great German liberal writer, Wilhelm von Humboldt,¹ once warned his country that "the moral character of the citizen and still more the energy of the economy will suffer from too much state supervision. . . . Whoever becomes used to being led by others will find it easy to surrender whatever remains of his independent life". This book, a symposium of essays by prominent German and Austrian liberals on political, economic and legal subjects, appears to draw much of its inspiration from Humboldtian individualism. Thus its point of departure is the necessity of restoring economic and political freedom to Germany. The latter implies the setting up of free democratic institutions and the former, significantly enough, necessitates the restoration of what one of the writers in *Ordo* once called the "bracing air of competition".

Considerations of space make it necessary for the reviewer to forgo detailed comment on the political and legal essays. It would be tempting to discuss at length Professor Hayek's scholarly contribution, "True and False Individualism,"² more especially in view of his novel suggestions regarding Cartesian political philosophy. Alfred Müller-Armack's essay on social ideals and the modern economy is rather reminiscent, stylistically at least, of Humboldt's later romanticism. Franz Böhm and Karl Josef Partsch write with authority, the former on kartell law and the latter on the topical German question of constitutional guarantees for civil and political freedom, incidentally discussing some of Humboldt's views. Professor Röpke puzzles over Schumpeter's *Capitalism, Socialism and Democracy* in a short review and surely one of his concluding remarks—"I must repeat once again, this is a strange book"—is fair comment!

Three essays by Professors Walter Eucken and Fritz Meyer and Dr. Miksch, all concerned with problems of economic planning, compel attention. Professor Röpke's essay on "Small and Medium-Sized Firms", while eminently readable, produces familiar evidence and arguments in favour of small-scale enterprise and need not concern us.

"The spirit of freedom helped to create industrial civilisation but this process of industrialisation has become in turn a threat to freedom itself". Upon this paradox Professor Eucken builds up his analysis of fundamental economic problems in his essay on "The Political Orientation of the Economic System". The first threat to both economic and political freedom has been monopoly capitalism. The second, the growth of the economic activities

¹ Humboldt, W. von: *Ideen zu einem Versuch die Gränzen der Wirksamkeit des Staats zu bestimmen* (1793).

² This essay is available in English as the Finlay Lecture (1945) originally published by Hodge (Dublin) and Blackwell (Oxford), and now reprinted in Professor Hayek's *Individualism and Economic Order* (Routledge), 1949.

of the modern state, grew out of the first but is not necessarily opposed to it—"New forms of dependence and slavery have arisen. The task of our times is to save freedom once again. . . . To-day's developments have been compared with the period of the downfall of the Roman Empire and rightly so. Then, as now, the State taxed heavily, directed agricultural and craft labour by compulsion, controlled prices and finally regulated all economic activity in town and country. Finally, the Empire was inhabited by serfs and collapse was inevitable. Is not the road taken by the declining Roman Empire that one taken also by Modern Europe?" The Road to Serfdom with a vengeance!

With regard to the more particular question of the economic aspects of planning, Professor Eucken puts forward similar views to those propounded in his two articles published recently in *Economica*. It is true, he argues, that unemployment is a very real economic and social danger and that full employment is a laudable social objective. But full employment is not synonymous with economic freedom. Firstly it is limited in scope to only one aspect of the economic problem, the other important objective being the solution of the standard of living problem (Unterversorgungsproblem). Secondly, the methods by which full employment can be attained involve the loss of other freedoms not only of an economic but also of a civil and political character which are just as precious as the right to work. Again, he reminds us, while it is true that the operation of the price mechanism in a free exchange economy may not lead to sufficiently rapid adjustments in total production and consumption so that crises and depressions may be avoided, yet its abdication in favour of physical controls used in order to achieve and maintain full employment will not produce economic equilibrium. Disequilibria caused by fluctuations in private investment are replaced by other sources of disturbance—bottlenecks (Engpässe) and shortages of all kinds—because the task of co-ordinating the entire industrial structure by a central administration is manifestly impossible. This point is made with even more emphasis by Dr. Leonard Miksch in his essay on the "Theory of Equilibrium" (pp. 175-95).

The economic aspects of full employment are considered in more detail by Professor Meyer in his essay "Monetary Policy, Full Employment and the Economic Order," which might be considered as a critical review of the well known publication by the Oxford Institute of Statistics on the subject. "A glance at economic history shows clearly a remarkable symbiosis of a policy of credit expansion and the emergence of a planned economy" (p. 92). This fact Professor Meyer proceeds to illustrate in detail. The usual chain of causation is postulated—a policy of credit expansion is followed during a period of low employment and industrial activity, a fall in interest rates caused by direct manipulation or indirect influence, rise in consumption expenditure, a rise in output and employment are all necessary consequences. But such a policy, Professor Meyer forewarns us, brings

with it imminent danger to the economy, and with delicate Robertsonian irony he adds: "such a method solves the employment problem rather in the manner of Till Eulenspiegel 'curing' the patients in the hospital at Halberstadt. Because he announced that it would be necessary to burn one of their number in order to obtain the required potion, they all fled and left the hospital empty!" (p. 96). The critical point at which central control of these developments will become necessary is when the general level of prices begins to rise but, according to Meyer, whatever Keynesian theory teaches, this point will be reached before full employment obtains, a fact substantiated by German experience (pp. 97-98). Control of prices will soon be followed by other forms of state interference—central control of consumption through rationing, control of imports under pressure of the foreign exchange position and so on. "Thus economic policy moves away from a position where harmless and limited controls are exercised . . . to a position where more and more direct controls are brought into operation." Professor Meyer has thus no quarrel with the logic of the Oxford economists, for the "Economics of Full Employment" only confirms his diagnosis. The quarrel is with the social objectives outlined by them. From this point onwards Professor Meyer sketches in the gloomy details of progressive instability and certain collapse in the economic system which will inevitably follow unless an exchange economy is preserved in full working order and credit expansion is not used as an 'anodyne' (Rauschgifttherapie) for the body economic.

Now the objections raised by these writers against economic planning may seem familiar enough but they are all the more forceful because they are based on experience of prolonged planning conditions. It is difficult not to be sympathetic with this point of view or not to be moved by the sincerity of the appeal that "although we have become impoverished, we cannot allow ourselves to serve once again as the experimental field of doctrinaire attempts to regulate the economy" (p. viii). But must economic planning directed to attain full employment necessarily mean that the price mechanism must abdicate? Is it really true, as Professor Eucken has suggested in another context,¹ that "to believe in the possibility of grafting prices on to the mechanism of control in a centrally administered economy is to believe in the squaring of the circle"? This point would be hotly disputed by British economists, some of whom, writing in this journal, have adopted a much more constructive approach to the problem. Moreover, it is significant that there is no attempt made in these essays to distinguish various types of control and no mention made of fiscal controls by the State, i.e., those particular controls which would operate through the price structure.

After the confession of faith in a free competitive economy made in the Foreword of this book, one might expect more discussion of

¹ Cf. Eucken, W.: "Theory of the Centrally Administered Economy"; Part II: *Economica*, August, 1948, p. 190.

its content and the methods to be used in establishing and maintaining it. Dr. Müller-Armack in a rather florid passage comes nearest to a description of it but admits that he gives no more than a sketch (pp. 150-54). In particular, one would have welcomed a word or two from Professor Meyer upon the international implications of the establishment of a free economy¹ for, it may be remembered, he held some highly original views on exchange practices prior to World War II.

In conclusion, the reviewer must emphasise that a critique confined to the economic views expressed in this book does less than justice to its breadth of scope. It is a work of uniformly high scholarship and occasionally profound insight into the problems of our time. The editors, Professors Eucken and Röpke and their collaborators, who include Professors Hayek, Lutz and Röpke, are to be congratulated. It is good to know that this book is only the first of a series to be published annually.

ALAN T. PEACOCK.

Civitas Humana: A Humane Order of Society. By WILHELM RÖPKE. William Hodge & Co. 1948. xxiii + 235 pp. 21s.

Professor Röpke has already, in 1942, given us one volume with the title, *Die Gesellschaftskrisis der Gegenwart*. Here again he plays the part of a physician to humanity whose function is to strike his finger on the place, and say: "Thou ailest here and here". But, if truth be told, he is a physician who is rather given to scolding his patient, who doubtless deserves scolding; and moreover the number of places in which the patient is ailing is so large that the bystander is left with the impression that very little can possibly be right. This in short, is an analysis, an extremely pessimistic analysis of present-day civilisation, made all the more depressing because of the intractable English of the translation in which it is presented.

On the economico-political side, Professor Röpke's position is well known. He is one of the small body of wholly uncompromising opponents of present-day trends who are resolutely antagonistic to socialism and collectivism in any form, and who have the courage to say so. The central problem, he considers, is whether a socialistic economic system is compatible with a democratic-liberal social and economic structure, and Professor Röpke has no hesitation in answering that it is not. For sufficient reasons he avoids the word 'capitalism', which indeed is no longer a useful word for any purpose, and he speaks in terms of the market economy. He draws a useful distinction between the "principle of economic order" and its "actual development". 'Capitalism', if the word must be used, should be reserved

¹ Cf. Meyer, F.: "Devisenbewirtschaftung als neue Währungsform": *Weltwirtschaftliches Archiv*, May, 1939. In this article Meyer held that exchange control "cannot be identified with restriction of foreign trade".

for the "distorted and soiled form" which the market economy assumed under a certain combination of circumstances. He is thus free to criticise historical 'capitalism', while energetically affirming the principle.

His condemnation of collectivism is on lines which are reasonably familiar to us from the works of, among others, Ludwig von Mises. Collectivism is bound to fail; it is inevitably coercive and despotic. A point more emphasised here than elsewhere is that "war and collectivism suit one another", and that almost inevitably a collectivist economy plans for war. It is moreover inconsistent with a federalist structure. In a later chapter Professor Röpke is even more emphatic in finding in socialism "the specific and possibly mortal disease of our epoch". Our author in no way falls behind von Mises in his trenchant exposition of the ultimate end of any flirtation with collectivism.

Professor Röpke is no less interesting, if not quite so lucid, in his discussion of the errors of rationalism. So also, while acknowledging "the immeasurable worth of science properly comprehended," he has a great deal to say in hostile criticism of so-called 'scientism', for which in the remote origin of things he seems to hold Saint-Simon largely responsible. Oddly, indeed, Saint-Simon appears here almost as if he had been the evil genius of Europe over the last century. It was he who had "sown a seed which, with unexampled fertility, was eventually to create the appalling confusion in which we are having to live to-day". It was from his doctrine that there "have finally emerged with a manifold cross-breeding on the one hand socialism, and on the other a highly organised and colossal capitalism". Saint-Simon without doubt is one of the most interesting figures in the early nineteenth century, and his influence was certainly for long underestimated; but it is probably doing him too much honour to regard him as the inspiration of all our social evils to-day.

Professor Röpke professes to be in search of a "Third Way", which shall be neither capitalist nor socialist. In fact his constructive programme is largely based on a somewhat nostalgic longing for a simpler age and a simpler structure of society. He is throughout against the worship of the colossal. We have to get away from centralisation; we have to encourage the smaller business; the smaller business shows greater resistance to crises. We have to restore property, as a measure to defeat the proletarianisation of society. We should find our ideal in the small Swiss community. In all this vision there is much that appeals to all sensible people; likewise his analysis of the maladjustments that spring from the unnatural life which a large part of the population lead under present-day urban conditions is penetrating and sympathetic. Yet at times it is difficult to escape the impression that he is sighing for an irrecoverable past. Thus he appears to aspire for a world in which "a healthy and well-designed city fulfilling all its functions" should be assigned a maximum population of fifty or sixty thousand inhabitants. As a mere personal preference, some of

us might out-Röpke Röpke and think those alone happy who live in a town of less than thirty thousand inhabitants, separated from the next town by an intervening space of sixty miles. But to think in terms of a maximum of fifty or sixty thousand inhabitants is not a promising beginning for those who would refashion Yorkshire and Lancashire.

The book has two defects which have already been hinted at, but which should perhaps be indicated more explicitly. The first is that Professor Röpke is a chiding prophet, and though it is doubtless the function of a prophet to chide, he should not chide overmuch. Moreover a chiding prophet, who sets no limits to his chidings, is in danger of appearing self-righteous, and thereby ruins his message. "Has there ever been so much lack of character", he asks, "so little civil courage, so much conformity and cynical opportunism, so many weak knees as in our generation?" It may be that sin has abounded; but that our generation has given many notable examples of character and courage should not be forgotten. Altogether Professor Röpke is a specialist in seeing the worst side of this dreary world, for whom Dante is merely a word for use in a crossword puzzle.

The other defect is that this book has been presented in a translation which will most effectively deter all but the stoutest from persevering to the end. It should be an obvious principle that if a book is worth translating, it is worth translating well. Even when Professor Röpke provokes disagreement—as he may in the minds of many by, for example, his gallant swimming against the tide in his discussion of social insurance and full employment—he is stimulating and he tends to a revision of thought. It is accordingly all the more regrettable that the garments in which he is here clothed should repel well-meaning readers.

ALEXANDER GRAY

The Variations of Real Wages and Profit Margins in Relation to the Trade Cycle. By Sho-Chieh Tsiang. Pitman. 1947. 174 pp. 25s.

Dr. Tsiang's book is an examination, both theoretical and statistical, of the course of real wages during the trade cycle. In view of the clash between traditional analysis, in which real wages were held to lag behind prices, and the opposite contention of Lord Keynes, Drs. Kalecki and Dunlop, that real wages rise when prices rise, an analysis of this kind was very desirable.

At the outset the distinction is drawn between the concepts of real wages and of product wages. The term "real wages" is reserved for the consuming power of money wages, and the "product wage" relates to the share of wages in the total proceeds from the production of a particular product. And, as he points out on page 43, "the index for real wage rates of Dr. Dunlop and Lord Keynes . . . was obtained by dividing the index of money wage rates with the index of the cost

of living; whereas the theoretical argument about the relative movements of real wages and activity, whether it be the 'lag theory' of the type put forward by Marshall or that which is based on the diminishing return to labour as used by Lord Keynes, really concerns the real wage rates in terms of the labour's own products in a closed system". Without emphasising this distinction, of course, it is perfectly possible for two conclusions to appear to be in opposition, when one is dealing with real wages and the other with product wages as here defined.

In the early chapters of the book, dealing with the problem on the theoretical level, he points out that "once it is admitted that imperfect competition is a prevalent phenomenon, no definite conclusion as to the relative movements of real wages and activities in the short period can be drawn from purely theoretical arguments" (page 24). On this he is at issue with Professor Pigou's *Employment and Equilibrium*, to which he devotes his second chapter (previously published in the *Economic Journal* of December, 1944). Once this prevalence of imperfect competition is accepted, then he can examine the statistics as showing what has actually happened, without implying that they necessarily test a theory. The British statistics are rather less interesting, in this context, than the American, in that the ratio between the British index of money wage rates and that of wholesale prices is particularly liable to be influenced by changes in the terms of international trade. Further, the British indices of money wages relate to weekly earnings, and so might not represent exactly the movements of the wage rates per unit of labour-time. The same index of prices has not been used throughout, and even apart from these difficulties, the indices of real wages are necessarily obtained by the dangerous process of dividing an index by another index, which at least runs the risk of spurious correlation effects. Yet, bearing in mind the limitations of the statistics, he can still say on page 51 that "it appears . . . that both for the United States and Great Britain, the traditional belief that in the short period prices generally rise or fall faster than wages and that real wages (in the sense of product wages) in industry as a whole generally move in the opposite direction with the short-period fluctuations of the level of employment holds good on the whole up to very recent years . . .".

When Dr. Tsiang examines the behaviour of profit margins and product wages in particular industries, he limits himself to the use of American figures, as the American economy was as near to being a closed economy as one could hope to find. Using these American figures, then, he analyses three industries: cotton textiles, paper and pulp, and iron and steel. Now he readily admits that he chose these three industries because of the availability of data for them. But this may, I think, be a source of strength and of weakness. For in the case of cotton, although there is a large number of firms within the 'industry', they tend to specialise in different lines of production, or

in different parts of the production process. So, for any particular process, or type of production, the number of firms is small. Then again, "the paper industry is generally recognised as an oligopolistic industry in which production is highly concentrated". And the case of iron and steel is also clearly one of very imperfect competition, with price leadership rampant. That is to say, the statistics are probably more readily available precisely because of the relatively small number of firms; because, that is, of the imperfection of competition. Yet the burden of the argument in the theoretical chapters of the book is, that when imperfect competition exists, there is no particular theoretical reason to expect relative movements of real wages, or product wages, and prices to bear any particular relationship to each other. It seems a pity, therefore, that more space was not devoted to the competitive industries, to see to what extent the cyclical relationship holds for industry in general, as opposed to one firm in particular within an industry. To the extent that the degree of price flexibility—however one may define it—varied between the industries which were considered, the profit margins showed quite a different pattern of behaviour from each other, as we should expect.

Finally, the book is rounded off with an exposition and critique of the Ricardo Effect. Had he merely presented us with statistics on the actual course of product wages during the trade cycle Dr. Tsiang's book would still have been interesting. By combining the statistics with the theoretical chapters, however, the book is an important contribution in this field.

DOROTHY HAHN.

The New Economics—Keynes' Influence on Theory and Public Policy.

Edited with introductions by SEYMOUR E. HARRIS. Dennis Dobson Ltd. 1948. xxii + 686 + ix pp. 30s.

An attempt has been made in this volume to appraise the whole range of Keynesian thought. With this purpose in mind, the authors have ventured far beyond a consideration of Keynesian beliefs as revealed in the *General Theory* (though the latter necessarily occupies a central place) and, indeed, the whole of Keynes' work since 1913—books, articles and speeches—has been brought under review. The character of the discussion is sympathetic, yet critical, and a double compliment is thereby paid to the memory of a great man and a great economist. One feels sure that Keynes would have appreciated the continued criticism quite as much as the laudations.

In this collection there is much that is new and some that is old (old material accounts for about one-third of the book). Undoubtedly it was appropriate that some previously published work should appear again in an omnibus volume, and our sincere thanks is due to the editor for his inclusion of Keynes' speeches to the Lords—if only for the oratory (e.g., at pp. 374–5), which reads as well as it must have sounded.

But the publication of old material also raises the question of omissions. It serves no useful purpose to list what was fated not to appear, but the reviewer must confess to one or two disappointments. There is, for example, no tangible recognition of the debt which Keynes undoubtedly owed to Robertson. Limitations of space are, of course, the usual excuse, but in the present connection one cannot help but feel that the volume would have been improved by the omission of some of the editor's many introductions, which serve no useful purpose and only add to the repetitions which almost inevitably mar a volume of this kind. A general introduction would have been sufficient.

The broad divisions into which this work is divided are as follows: the main issues; three views of Keynes, the economist; five views of the *General Theory*; Keynes' influence on public policy and the new science of econometrics; international economics; economic fluctuations and fiscal policy; money and prices; wages and effective demand. Two of the most interesting sections in the book are those concerned with international economic relations (indeed, Nurske's contribution is one of the best in the volume) and the influence of Keynesian analysis on the theory of economic fluctuations. To international economics, we discover, Keynes probably devoted more space than to any other subject (the editor estimates "about nine hundred pages in his books, and considerably more than one hundred articles"). Hence the allocation of pp. 245-400 in *The New Economics* to this branch of the subject. Of the contributions in the field of economic fluctuations, Hart's analysis of expectations and "certainty equivalents" (pp. 421-2) stands out. Several authors have paid tribute to the importance of the consumption function, but in the opinion of the reviewer there has been a tendency to give this too much emphasis and to neglect some of Keynes' less publicised achievements. There are, for example, his important contributions to the theory of money and prices, which had a far wider relevance than his rather sweeping generalisations about the propensity to consume. The Keynesian 'revolution' surely consisted in the building up of a *system* of thought, and the emphasis should rather be on these attempts at synthesis and systematisation.

Two minor grumbles. We are told (p. 482) that "Keynes did not discover the multiplier; that honour belongs to Mr. R. F. Kahn". Is this not rather too dogmatic? Kahn was probably the first truly to formalise the idea, but the "multiplying principle" was stated at least as far back as 1908, when Johannsen published *A Neglected Point in Connection with Crises*. Moreover, this analysis (rough though it may have been) had already been noticed by W. C. Mitchell and was referred to by Keynes himself in his *Treatise*. More recently, Giblin (*Australia*, 1930) may be cited as an anticipator of Kahn. My second query relates to the description by Haberler (at p. 179) of Pigou as a 'socialist' economist. To the British reader this seems rather an odd classification—to say the very least.

One thing that does emerge clearly from the present volume is the assumptions underlying the Keynesian system. For example, perfect competition is assumed throughout and there are only fleeting references to the problems of monopoly. Keynes also assumed that techniques of production and the amount of fixed capital were given and remained unchanged over the relevant periods. Furthermore, under the influence of these two assumptions, Keynes proceeded to incorporate into his argument the implications of the Law of Diminishing Returns, though, as he conceded later (*Economic Journal*, March, 1939) this was not strictly necessary. Finally, all of the formal analysis proceeds on the assumption of a closed economy and some of his policy recommendations (e.g., on wages) are also only generally consistent with this assumption.

In addition to these assumptions (and distinct from them), there are certain discernible characteristics which typify the Keynesian analysis. All this has been commented upon and emphasised in *The New Economics*. Thus the *General Theory*—for all its allusion to ‘expectations’—is essentially static and, as a result ignores the interdependence of what is with what went before and with what is to follow later. Secondly, the Keynesian system is expressed in terms of relations between aggregates and there is little attempt made to break these down into their respective components. Third, Keynes is accustomed to describe the conditions of an equilibrium without bothering to trace out in detail the process or path by which such an equilibrium is attained. As against all this, there is much qualification to be found throughout the *General Theory* in the form of *obiter dicta* upon which could be based a defence of Keynes (that is, if he needs defending), and the form of his argument seems to indicate a desire to avoid pettifoggish detail in order to climb quickly to the heights from which to obtain the grand view.

In the beginning it was hoped that this review might have been the occasion for a judgment, the purpose of which would have been to determine where Keynesian theory stands to-day. This would seem to have been one of the objects of the present volume. Twenty-six leading economists must have been asking themselves just this question, though they have scarcely resolved it. Indeed, for anyone who has not quite made up his mind about Keynes, this volume will only unsettle him further. Yet it should convince him of the wisdom of remaining critical. One is entitled to ask whether there really is a ‘new’ economics. Are not Keynesian ideas rapidly becoming absorbed into the general body of economic thought? Admittedly, these ideas have worked like leaven for ten years or more and are still working. But let all contemporary economists be reminded that “the classical teaching embodied some permanent truths of great importance”, or the ‘new’ economics may yet deserve to be described as “modernist stuff, gone wrong and turned sour and silly”.

Of Keynes himself it cannot be denied that his influence on both theory and policy was great. Moreover, in the work of Keynes there is a return to the older conception of political economy in which theory and policy meet on common ground, and it may be a matter for reflection that most of the great works in our field have had this wider connotation. It is obviously too soon to offer any final judgments on Keynes and his work, but one is inclined to feel with Hansen that "Keynes may in the end rival Adam Smith in his influence on the economic thinking and governmental policy of his time and age. Both lived at profound turning points in the evolution of the economic order. Both were products of their times. Yet both were also powerful agents in giving direction to the unfolding process of institutional change".

J. S. G. WILSON.

The Australian Economy in War and Reconstruction. By E. RONALD WALKER. Oxford University Press. New York. 1947. ix + 426 pp. 30s.

This book, which is issued under the auspices of the Royal Institute of International Affairs, is something more than an interim economic history of Australia at war. It is primarily a personal interpretation of political and economic developments offered by one who, for the greater part of the period under review, sat very close to the centre of the events he has described. It is, therefore, very largely an "inside view". In the early days of the war Dr. Walker was a university professor, with which he combined the duties of economic adviser to one of the Australian State governments. But in December, 1941, he joined the staff of the new Federal Department of War Organisation of Industry and thereafter his observation of the workings of the war economy was mainly incidental to active participation in Commonwealth administration. The work of this Department, of which he became Deputy Director-General, brought him into direct contact with most of the other Federal Government departments and special wartime authorities, as well as with individual industries. The author was also a member of the Financial and Economic Committee and Chairman of the Civilian Requirements Board. Early in 1945 he left for Washington to take up duties with U.N.R.R.A. and was once again in a position to view developments with detachment.

The study is a balanced and objective account of the main economic and political developments in Australia up to mid-1945. Most of the book was written in 1944 and it suffers—as all wartime surveys must—from the author's closeness to his material. But his work has also suffered (undeservedly) from the long delay in its publication. Nevertheless, the reviewer feels that the book will have a permanent value, because it has thrown the spotlight of enquiry on to the social and political changes which wrack a nation at war. It is, in a sense,

on-the-spot reporting—with all its virtues and weaknesses. It represents a very useful drawing together of various articles and unpublished internal reports, written at the time of the events described, and we should be grateful to have these readily available within the confines of one cover. Even more valuable will be those sections in which Dr. Walker has broken away from his description of events to analyse the theoretical and philosophic bases of the policies he has described. Indeed, the author is at his best when he puts behind him the task of routine reporting in order to take stock of the less tangible underlying ideas. For example, there are excellent accounts of the economic implications of total war (pp. 13–35), of the mechanics of war finance (pp. 214–217), and of the main features of the mixed economy (pp. 399–404) which he sees as the dominant form of economic organisation of the future.

The story opens with a sketch of the Australian economy pre-war, an understanding of which is fundamental to a full appreciation of the economic significance of the Australian war effort. The subsequent arrangement of material is divided into three parts: Part I gives a general account of the war economy, stressing the problems which were peculiar to Australia; Part II is devoted to an analysis of special topics, such as industrial development, wartime re-organisation of industry, agriculture and food policy, financial policy and banking control, price control and price stabilisation, civilian supply, labour and manpower policy, and the special difficulties of wartime trade. Here, emphasis is frequently placed on the similarity of Australia's problems with those of the United Kingdom and the United States, but space is also devoted to the rather special solutions which in certain cases Australia saw fit to adopt. These chapters are somewhat uneven in quality and reflect, one fears, the conditions under which they were written. Nevertheless, there is much to be found here which will provide useful introductory and reference material for future research workers. One instance is the outline of the changes in economic structure which resulted from the war. In several cases, however, it was a pity that the author had to end his narrative in 1945, and was therefore not able to consider subsequent legislation directly influenced by wartime experience (e.g., in the fields of banking and the treatment of labour problems). This is not a criticism of the book as such, but an attempt to emphasise the wisdom of allowing a lapse of time before undertaking these tasks. The final part is concerned primarily with Australia's approach to her post-war problems, and, to many, these chapters will be the most interesting. The book closes with a discussion of Australia's economic future, with a final appraisal of the probable performance of the economy in terms of human welfare. One would have thought, however, that welfare concepts are still far too imprecise to be used effectively for this purpose.

J. S. G. WILSON.

American Institute of Accountants. *Accounting Survey of 525 Corporate Reports. (Fiscal years ending July 1946, to June 1947.)* New York. 1948. iv + 97 pp.

In 1946 the American Institute of Accountants authorised a programme of long-term research into annual corporate reports, of which some of the first-fruits are the data now summarised and presented. The survey is confined to a statement of facts and the reader must not expect to find analyses of the outstanding problems in this field. It takes us, item by item, through Balance Sheet, Income Statement, Surplus Statement and Accountants' Report, recording the variations in accounting practice found by the investigators. Particular note is taken of interesting or unusual techniques, such for example as the case of the department store which adopted the last-in first-out method of inventory valuation and applied this by means of an index of retail prices.

For the accountant out of touch with U.S. practice the survey is of very considerable interest. It emphasises the great heterogeneity of a company accounting practice untrammelled by the more rigid rules of British company law and brings out the great importance attached by American auditors and by the Securities and Exchange Commission to consistency of practice in profit determination year by year and to the disclosure of material changes in practice. The great latitude in conventions of profit determination which the survey reveals, evidences, as in this country, the unsatisfactory state of accounting theory, and it is here that the survey is disappointing. This is because it has presumably been conceived in the nature of a preliminary general survey of the territory to be covered, rather than of a detailed study.

On the question of depreciation on original cost versus replacement cost it has little to say, no doubt because only 27 out of the 525 companies disclosed the principles on which their depreciation computations were based. Stock inventory valuation received more attention. 46 per cent. of the companies examined indicated the method of determining inventory cost. Of these about 60 per cent. used average cost or first-in first-out (F.I.F.O.) against 23 per cent. using last-in first-out (L.I.F.O.). One company used H.I.F.O.—highest-in first-out! We are given details of interesting refinements in the technique of inventory valuation employed by one or two companies, and these might well repay study by those facing these problems. The general plan of the report, however, makes it impossible for the authors to pursue the matter much further, or even to analyse thoroughly the almost appalling variations in practice in stock valuation which it shows exist. For this, and for further consideration of the other problems, we shall have to wait until the American Institute carry their pioneering work another step forward.

H. C. EDEY.

The Trade of Nations. By MICHAEL A. HEILPERIN. Longmans, Green & Co. London, New York and Toronto. 1946. xix + 234 pp. 19s. 6d.

It is notoriously difficult to attract a wide audience for proposals in the field of international financial and commercial policy. This is due in part to the fact that such matters are complicated, technical and never dramatic and in part also to the public's lack of an adequate general background and of a perspective with which to approach and appreciate such proposals. Dr. Heilperin felt that a "proper understanding" of the rationale, mechanisms and problems of international trading was "an indispensable condition for the development of an enlightened public opinion behind a consistent national foreign economic policy" and therefore at the end of the war he "undertook with enthusiasm the task of bringing together the threads of nearly twenty years of study, observation, and reflection in the field of international economic relations". The result is a book which may be recommended to those seeking a clear and well documented exposition of general principles of trading and of some of the major lessons of experience in the international economic field during the inter-war period.

The proposals that Dr. Heilperin leads his reader to are those of Bretton Woods and of the original American draft of an International Trade Charter but of both he has criticisms to make. One point against Bretton Woods concerns the scarce currency clause. Dr. Heilperin dislikes this clause because it permits the use of exchange control but he does not point out that in practice the use made of it is likely to be small owing to the tardiness of its operation.

It might have been the case that (as the President of the International Bank declared in his Address in September, 1948) "At the time of Bretton Woods, the extent and nature of the economic convulsion which had come upon the world was not apparent, nor could it be foreseen that the post-war world would be politically so sharply divided". Yet in this book a chapter is devoted to some transitional problems which have been highly disturbing over the past few years. Apart from the United Kingdom's balance of payments problem, Dr. Heilperin deals with the settlement with Germany and the place of the U.S.S.R. in European reconstruction. He favours a separation of the Ruhr, the Rhineland and the Saar from Germany and their integration in the economies of France, Belgium and the Netherlands, preferably within one customs union.

The book was addressed to the American public and it is appropriate, therefore, that the implications for the United States of schemes for promoting world trade and development should be pointed out. The author urges that in six ways the United States could and should contribute: by maintaining domestic employment, by reducing tariffs, by investing in underdeveloped regions, by "the revitalisation and protection of market mechanisms and of economic flexibility and

adaptability", by concerting full employment programmes with others and by pursuing a policy which favoured non-discriminatory trading and currency convertibility. At a time when belief in the usefulness of tariff reductions by the United States has reached a low ebb it is heartening to read a programme which stresses it. The point cannot be made too often that for some items the tariff is still highly protectionist and reductions would in those cases materially help Europe in her export task, given the level and distribution of American income. It might well be that changes in income would have sharper effects on imports than changes in tariffs. But that is a separate issue.

D. J. MORGAN.

International Trade and Commercial Policy. By LAWRENCE W. TOWLE. Harper & Brothers. New York and London. 1947. xiii + 780 pp. \$4.50.

In his preface the author states his objective in writing this book: "No pretense is made herein of blazing new trails in the field of international economics. The purpose of this book is, rather, to acquaint the student with the major issues of international economics and their political ramifications, to familiarize him with the tools of economic analysis which have been forged and improved over the past two centuries and more, and to instruct him in their use, particularly with reference to the commercial policies of nations". The twenty-seven chapters comprising this book do indeed at one place or another 'acquaint' the student with almost every topic in international trade theory and policy. Among them are chapters on mercantilism, rates of exchange, the modern classical theory, the mutual interdependence theory, commercial treaties, international combinations, merchant marine policies, colonies and the future of international trade. With such a wide range, even in nearly eight hundred pages it is to be expected that the emphasis should be placed on 'acquaint' rather than 'familiarize', although the list of suggested readings at the end of each chapter should prove invaluable to the student wishing to follow up the start he has been given.

On the whole the start is what one would wish but here and there one is not so sure. One wonders, for instance, whether it is entirely an unconscious patriotism that leads one to think that the contribution of Mill and Marshall is rather lost sight of, particularly Mill's law of reciprocal demand and Marshall's pure theory. One wonders, too, whether little more than a page will help or hinder the student's understanding of the opportunity cost doctrine as applied to international trading. At times one feels there would have been greater clarity if the author had allowed himself to classify his topic more finely before beginning his analysis. A simple classification on the basis of motivation would have enabled the author to avoid, for

example, making the statement, "Net movements of short-term capital and gold-flows are essentially adjustment items," in the text and then adding in a footnote below (p. 156) "Short-term capital movements and gold are not always adjustment items: At times short-term capital movements are initiated independently of other items in the balance of payments." Again, in the discussion of the gold standard one would have expected the student to have been introduced to the rôle of the bill of exchange on London in the period ending in 1914 when the gold standard was in fact a sterling standard. Or, finally, after reading about the effect on internal prices of exchange depreciation one wonders whether the student will be helped by two illustrations which show the *failure* of domestic prices to respond to doses of depreciation (p. 207). In this respect the author, like so many other writers, ignores the distributional differences between deflation and exchange depreciation. For whereas deflation in the first instance affects the real income of the wage-earner adversely and that of the fixed-income receiver favourably, exchange depreciation, via its effect on the price of imports, hits wage-earner and fixed-income receiver in proportion to their expenditure on imports. It may also be the case that the change in the expectations of buyers and entrepreneurs differs according as the adjustment of prices is downwards, as under deflation, or upwards, as under exchange depreciation. An upward adjustment might not act as a tonic but rather as a poison. Those who condemn policy in Germany after 1929 might well ponder Professor Towle's view that in the case of Germany "the really decisive consideration against currency depreciation was the fear that the man in the street would associate in his mind the depreciation of the external value of the currency with inflation, and that this would cause a scramble for goods and equities and would actually produce inflation. No country in Central Europe could face this risk after the disastrous experiences of the post-war years" (p. 462).

These caveats should not lead one to regard the book as a whole as other than able and constructive reporting. As far as the English student is concerned the book will be useful during the second year of economics when he is beginning a new topic or a fuller treatment of a topic touched on in his first year course and wants a brief, lucid, sketch.

D. J. MORGAN.

Further Studies in Industrial Organisation. Edited by M. P. FOGARTY. Nuffield College Social Reconstruction Survey. Methuen & Co. Ltd. 1948. ix + 228 pp. 15s.

These further studies in industrial organisation comprise a 20-page introduction by Mr. Fogarty and sections on a varied group of industries. Mrs. Edwards writes 80 pages on flour milling, Mr. Kelsall in collaboration with Professor Hamilton, Dr. Wells and Mr. Edwards has written 80 pages on the white fish industry, Professor Hamilton

28 pages on the granite industry and Dr. Mary Rankin 15 pages on the brewing industry of Edinburgh. Mr. Fogarty's introduction, in my opinion an outstanding and balanced bit of writing, points out how in different ways these industries illustrate the problems of efficiency and monopoly which ought to be the concern of consumers and the Government.

In a generation the flour milling industry has been re-organised as a very efficient industry. This efficient organisation, producing a commodity the demand for which is inelastic, has yielded large profits, has enabled labour made redundant by the increased efficiency to be generously treated and the conditions for those remaining in the industry to be excellent. It is exceptional to have a progressive, efficient and profitable industry when the consumption of the product (up to 1939) is declining.

In contrast, the white fish industry has expanded, landings in 1938 being about one-third greater than in 1913. The significant feature, however, is that if Hull be excluded British landings show no increase at all—the whole of the increase can be considered as associated with the developments at Hull. It was Hull which had the newest trawlers and the best living conditions for the crews, the largest concerns and the firms which made the biggest profits. It was Hull trawlers which went furthest, sold the cheapest fish and extended the market to poorer people, especially through the fried fish shops. It was the industry at Fleetwood, Aberdeen and Grimsby with less efficient equipment, selling higher-grade fish, which was in the greater financial difficulties. However, when things were difficult in the 'thirties, it was Hull (with Grimsby) owners who by voluntary agreement restricted landings. About Aberdeen in particular complaints are made that ancillary companies, associated with the trawling companies by financial arrangements and interlocking directorates, have led to the sacrifice of the fishing itself to the benefit of those which provide ships' supplies, often very inefficiently.

The granite industry is declining, and neither it nor the brewing industry of Edinburgh are described in such a way as to suggest they are making marked technical progress or becoming more efficient.

The problem arises as to what Government policy ought to be with regard to industries such as these. There is a danger in telling an industry to integrate and instal modern and expensive equipment, as if that will always lead to more efficient production and also as if unlimited resources can always be found for capital formation. If people nominated by the Government had used the same resources as the enterprising millers, would the results have been as good as they were? Then, even in the flour milling industry, there is the problem of whether the results were obtained at too great a cost. Was it necessary to give such rewards to those engaged in the industry? In many respects the flour millers were in a favourable position, their raw material, wheat, fell rapidly in price between 1925 and 1931, and

with that fall the price of flour was reduced. But the cost, including profits, of turning that wheat into flour was not reduced, and after 1932 up to the outbreak of war it tended to increase. If the new organisation was so much more efficient than the old, surely it could have turned wheat into flour and bye-products at a lower cost per cwt. than previously, and could have allowed some of the benefits to be received by consumers?

My own tentative conclusion is that the development of a monopoly usually indicates real economies of production by the monopolistic organisation; the economies may be associated with technical efficiencies or with a remarkably able personality. It seems to me necessary to pay the organisers adequately for the efficient development, and the appropriate way is to allow high profits, which might be considered analogous to high piece-rate earnings. The danger seems to come subsequently; when the monopoly has been established it may be in a position to exploit the consumer, whilst the 'profits' associated with efficient production may turn to 'rents'. There was apparently successful enterprise in Aberdeen in the ten years ending 1902 associated with the replacement of sailing vessels with steam trawlers, and handsome profits were made. Subsequently the industry seemed to lack enterprise, but it might have continued for a long time to live on the rents of the capital invested prior to 1902 had it not been for the developments in Hull. An effective monopoly might have prevented the Hull developments altogether, and one fears that the bigger organisations of to-day tend to be more effective monopolies than those of 1900, especially when associated with import restrictions.

The problem of adequate remuneration for successful enterprise seems to be more important than remuneration adequate to allow individuals or companies to make private savings. Government taxation can provide funds for capital formation, though there is a problem of getting the funds to the right people. I am not satisfied that Government nomination can provide the right kind of successful enterprise.

H. S. BOOKER.

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The Economic Theory of Index Numbers

By R. G. D. ALLEN

THIS paper attempts a synthesis of what might be called the "classical" economic theory of index numbers, developed by Staehle and others,¹ with the later work of Hicks² and Samuelson.³ The problem can be expressed in its simplest form as follows. A given individual consumer is considered in two situations, 1 and 2, usually (but not necessarily) two points of time. Complete price-quantity data are available for the consumer in each of the situations, i.e., the prices of $(n+1)$ commodities, $p_1, p_1', p_1'' \dots p_1^{(n)}$, and the quantities purchased, $q_1, q_1', q_1'' \dots q_1^{(n)}$, at situation 1, and the corresponding prices and quantities denoted with a suffix 2 at situation 2. A definite preference map, subject to the usual conditions of convexity, etc., is assumed for the consumer in each situation, but the map for situation 1 may be different from that for situation 2. The consumer is assumed to have free choice. In particular, nothing will be said about a situation in which there is rationing. Can we define an index of the change in prices and an index of the change in the volume of consumption from situation 1 to situation 2? If so, can we obtain a measure of each index or, at least, limits for each index?

We can start with the problem of the *price index*. A perfectly definite index of price change can be defined for the consumer for situation 1, which has reference only to the indifference level I_1 on which the consumer finds himself at this situation. The index, P_{12} (situation 1), is the income which leaves the consumer on the indifference level I_1 when expended optimally at prices (p_2) , divided by the actual income expended at prices (p_1) . Here the prices (p_2) can be regarded as a hypothetical alternative to the prices (p_1) in situation 1. There is no reference to the behaviour of the consumer in situation 2; the index is independent of the preference map of situation 2 and of the purchases (q_2) made in this situation. We know what purchases (q_1) the consumer makes in situation 1; to derive the index we should need to know the purchases, call them (q) , he would make if the prices had been (p_2) to maintain the same indifference level. We are not interested in what the consumer actually does at prices (p_2) in situation 2. By definition, then:

$$P_{12} \text{ (situation 1)} = \frac{\sum p_2 q}{\sum p_1 q_1}$$

where Σ extends over all commodities in the usual notation.⁴

¹ See, particularly, H. Staehle, "A development of the Economic Theory of Price Index Numbers," *Review of Economic Studies*, 1935.

² J. R. Hicks, "The Valuation of the Social Income," *Economica*, 1940.

³ P. A. Samuelson, *Foundations of Economic Analysis*, 1947, Chapter VI.

⁴ For example, $\sum p_1 q_1 = p_1 q_1 + p_1' q_1' + p_1'' q_1'' + \dots + p_1^{(n)} q_1^{(n)}$.

The difficulty is that the quantities (q) are not known. But we can state that $\Sigma p_2 q < \Sigma p_2 q_1$. This follows since, with income $\Sigma p_2 q_1$ at prices (p_2), the consumer could purchase the quantities (q_1) and attain the indifference level I_1 ; in fact, he will spend the amount differently and attain a *higher* indifference level. So, $\Sigma p_2 q_1$ spent at prices (p_2) will give a higher level of indifference than $\Sigma p_2 q$ spent at prices (p_2). Since the prices are the same, the former sum is greater than the latter. Hence:

$$P_{12} \text{ (situation 1)} < \frac{\Sigma p_2 q_1}{\Sigma p_1 q_1} \text{ (Laspeyres Form)}$$

and the available price-quantity data provide one (an upper) limit to the price index defined at situation 1.

By reversing situations 1 and 2, we can define an index of price change for situation 2 in exactly the same way. This index refers to the indifference level I_2 attained on the preference map of the consumer in situation 2. If the price change is measured from (p_2) to (p_1), we have a limit as before:

$$P_{12} \text{ (situation 2)} < \frac{\Sigma p_1 q_2}{\Sigma p_2 q_2}$$

Taking the reciprocal, we get the index for the change from (p_1) to (p_2):

$$P_{12} \text{ (situation 2)} > \frac{\Sigma p_2 q_2}{\Sigma p_1 q_2} \text{ (Paasche Form)}$$

and the price-quantity data provide one (a lower) limit to the index.

The two index numbers are quite distinct. One refers to situation 1, and in particular to the level of indifference I_1 attained on the preference map of situation 1. The other refers to situation 2 and to the level of indifference I_2 attained on the preference map there ruling. The two preference maps can be different.

We get no further by making the additional assumption that the preference map remains unchanged from situation 1 to situation 2. We can only make one formal change in the way of writing the index numbers. We can say that the price index from (p_1) to (p_2) is a function of the indifference level I on a fixed preference map, i.e., we can write all the different and distinct index numbers we can define in the functional form $P_{12}(I)$. Then

$$\text{(Paasche)} \quad \frac{\Sigma p_2 q_2}{\Sigma p_1 q_2} < P_{12}(I_2); \quad P_{12}(I_1) < \frac{\Sigma p_2 q_1}{\Sigma p_1 q_1} \text{ (Laspeyres)}.$$

This is no more than a formal change. The relation between $P_{12}(I_1)$ and $P_{12}(I_2)$ remains unknown.

Whatever values the Laspeyres and Paasche index numbers take, there can be no test of the hypothesis that the preference map is unchanged. This hypothesis, indeed, has no relevance to price index numbers which (by definition) relate to one indifference level alone. A price index is not dependent on the preference map (apart from one indifference level) and, in particular, the ordinal nature of "utility"

is not involved. The difficulty is the multiplicity of price index numbers, one for each indifference level.

The problem of the *volume index* is completely different. Here, we have to compare the quantities (q_1) with (q_2), i.e., the indifference level I_1 with I_2 . The index has no meaning unless we make the assumption that the preference map is the same in the two situations. If the assumption is made, however, there is not a multiplicity of volume index numbers; it makes no difference if we start from indifference level I_1 or from I_2 . The difficulty is a different one, namely that the ordinal nature of "utility" implies that the volume change is ordinal in nature. There is a multiplicity of measures of the change, though all measures rise or fall together.

We can limit the multiplicity of measures by adopting reasonable conventions. We can agree to use money values, i.e., to value the quantities purchased at certain prices. Fixing one set of prices (p), we define an expenditure line across the preference map joining the points (q) where a price plane with slopes (p) is tangential to the indifference surfaces. We can then measure the volume of consumption by taking indifference levels as ordered along this line and using distances between tangent planes (measured in the direction of the money or *numéraire* axis). A perfectly definite index of volume change is thus defined. But all this relates to the choice of prices (p). There is a measure of the volume index $Q_{12}(p)$ for each price set (p) selected.

One such measure is :

$$Q_{12}(p_1) = \frac{\Sigma p_1 q}{\Sigma p_1 q_1},$$

where (q) is the point on the indifference level I_2 where the tangent plane has slopes (p_1). The quantities (q) are not known but $\Sigma p_1 q < \Sigma p_1 q_2$. This follows since, with income $\Sigma p_1 q_2$ at prices (p_1), the consumer could purchase (q_2) on indifference level I_2 but in fact would purchase other quantities on a *higher* indifference level. So, $\Sigma p_1 q_2$ spent at prices (p_1) gives a higher level of indifference than $\Sigma p_1 q$ spent at prices (p_1). Hence :

$$Q_{12}(p_1) < \frac{\Sigma p_1 q_2}{\Sigma p_1 q_1} \text{ (Laspeyres Form).}$$

Similarly :

$$Q_{12}(p_2) > \frac{\Sigma p_2 q_2}{\Sigma p_2 q_1} \text{ (Paasche Form).}$$

So, on the assumption that the preference map is the same in situation 1 and in situation 2, we have :

$$\text{(Paasche)} \quad \frac{\Sigma p_2 q_2}{\Sigma p_2 q_1} < Q_{12}(p_2) ; \quad Q_{12}(p_1) < \frac{\Sigma p_1 q_2}{\Sigma p_1 q_1} \text{ (Laspeyres).}$$

The index of volume is ordinal and $Q_{12}(p_1)$ and $Q_{12}(p_2)$ are two measures of it. The only relation between them is that $Q_{12}(p_1) > 1$

implies $Q_{12}(p_2) > 1$ and conversely. This relation, however, is vital since (as we shall now show) it enables us to bring the hypothesis of unchanged preference map to test under certain conditions.

There is a multiplicity of *different* price index numbers and a multiplicity of *measures* of one (ordinal) volume index. Whichever index is selected, there is one limit to its value, but not two limits, defined by index numbers of Laspeyres and Paasche types. It follows that there are cases, when the Laspeyres index is less than one, or the Paasche index greater than one, where an increase or a decrease in the price or volume index can be deduced. For the price index, the increase (or decrease) applies to only one index; it says nothing about other price index numbers at different indifference levels. For the volume index, however, if one measure shows an increase (or decrease), then all measures do the same.

The cases where we have significant information are:

- I $\Sigma p_1 q_1 > \Sigma p_2 q_1$ implies price *fall* from (p_1) to (p_2) at indifference level I_1 ;
- II $\Sigma p_2 q_2 > \Sigma p_1 q_2$ implies price *rise* from (p_1) to (p_2) at indifference level I_2 ;
- III $\Sigma p_1 q_1 > \Sigma p_1 q_2$ implies volume *fall* from (q_1) to (q_2) ;
- IV $\Sigma p_2 q_2 > \Sigma p_2 q_1$ implies volume *rise* from (q_1) to (q_2) .

For example, in I, the Laspeyres form $\frac{\Sigma p_2 q_1}{\Sigma p_1 q_1} < 1$ and so $P_{12}(I_1) < 1$.

The inequalities I and II can both hold, since one index of the many price index numbers can rise and another can fall. But inequalities III and IV cannot hold together, since, though there is a multiplicity of measures of the volume change, they all move up and down together. Hence

$\Sigma p_1 q_1 > \Sigma p_1 q_2$ implies $\Sigma p_2 q_2 \nless \Sigma p_2 q_1$
and $\Sigma p_2 q_2 > \Sigma p_2 q_1$ implies $\Sigma p_1 q_2 \nless \Sigma p_1 q_1$.

This is where the hypothesis of unchanged preference map is brought to test. If the conditions above do not hold, then the hypothesis is rejected. If the conditions hold, however, the hypothesis is not necessarily true; it is merely not inconsistent with the data. We can reject the hypothesis but never establish it as valid.

Samuelson maintains that all we need know is expressed by I—IV above.¹ In a sense, this is true. The inequalities I—IV can be established without reference to index numbers. For example, if $\Sigma p_1 q_1 > \Sigma p_2 q_1$, then with a lower income than $\Sigma p_1 q_1$ (i.e., with $\Sigma p_2 q_1$) the consumer could still purchase the quantities (q_1) at prices (p_2) . In other words, the consumer can certainly maintain the indifference level I_1 with a lower income if prices are (p_2) than if they are (p_1) , i.e., there is a price fall from (p_1) to (p_2) at the indifference level I_1 . The other inequalities can be established just as simply.

¹ Samuelson, *op. cit.*, p. 162.

However, it is *convenient* to have the index number formulation. The practice of index numbers is so general, and so useful if carefully followed, that we cannot discard these concepts. My own view can be summarised as follows. The simple theory of index numbers, as set out above, can be kept in mind as a general guide. It applies strictly only to a single consumer purchasing final commodities. We can make certain extensions, in which the sharp edge gets somewhat blurred, first to a group of consumers of final commodities and then to commodities other than final commodities.¹

Then, for a complete comparison between two years, or other suitable periods, we obtain the four valuations— $\Sigma p_1 q_1$, $\Sigma p_1 q_2$, $\Sigma p_2 q_1$ and $\Sigma p_2 q_2$. There are 24 different possibilities in the ordering of these four values which can be arranged in two similar groups of twelve as follows :

| Possibility No. | Ascending order of (r, s) = $\Sigma p_r q_s$ (r and s = 1, 2) | Price change at indifference level I_1 | (p_1) to (p_2) at indifference level I_2 | Volume of consumption change (q_1) to (q_2) |
|--|--|--|--|--|
| I Case $\Sigma p_1 q_1 < \Sigma p_2 q_2$ | | | | |
| 1 and 2 | (1,1) < (2,2) < (1,2) and (2,1) | .... | .... | .... |
| 3 | (1,1) < (2,1) < (2,2) < (1,2) | .... | .... | Rise |
| 4 | (1,1) < (1,2) < (2,2) < (2,1) | .... | Rise | .... |
| 5 | (2,1) < (1,1) < (2,2) < (1,2) | Fall | .... | Rise |
| 6 | (1,2) < (1,1) < (2,2) < (2,1) | .... | Rise | Fall |
| 7 and 8 | (1,1) < (1,2) and (2,1) < (2,2) | .... | Rise | Rise |
| 9 | (2,1) < (1,1) < (1,2) < (2,2) | Fall | Rise | Rise |
| 10 | (1,2) < (1,1) < (2,1) < (2,2) | Inconsistent* | | |
| 11 and 12 | (1,2) and (2,1) < (1,1) < (2,2) | | | |
| II Case $\Sigma p_1 q_1 > \Sigma p_2 q_2$ | | | | |
| 1 and 2 | (2,2) < (1,1) < (1,2) and (2,1) | .... | .... | .... |
| 3 | (2,2) < (2,1) < (1,1) < (1,2) | Fall | .... | .... |
| 4 | (2,2) < (1,2) < (1,1) < (2,1) | .... | .... | Fall |
| 5 | (2,1) < (2,2) < (1,1) < (1,2) | Fall | .... | Rise |
| 6 | (1,2) < (2,2) < (1,1) < (2,1) | .... | Rise | Fall |
| 7 and 8 | (2,2) < (1,2) and (2,1) < (1,1) | Fall | .... | Fall |
| 9 | (1,2) < (2,2) < (2,1) < (1,1) | Fall | Rise | Fall |
| 10 | (2,1) < (2,2) < (1,2) < (1,1) | Inconsistent* | | |
| 11 and 12 | (1,2) and (2,1) < (2,2) < (1,1) | | | |

In Case I, the actual outlay increases from period 1 to period 2, the general inference being a price rise, or a higher volume of consumption, or both. Something, in fact, can be said on these lines—except in possibilities 1 and 2 when nothing is known, and in possibilities 10, 11 and 12 when the hypothesis of unchanged preference map is rejected. Case II is similar. It should be remembered, however, that even when we say (e.g., in I, 3) that the data indicates a rise in volume of consumption, this is on the assumption of an unchanged preference map, an assumption which is unproven, though not inconsistent with the data. An illustration of the method is given in the Appendix.

¹ These extensions need not be amplified here. The first is considered by Hicks (*op. cit.*) and the second referred to by Carter, Reddaway and Stone in *The Measurement of Production Movements*, 1948, p. 71.

² Volume of consumption indicated as a rise and as a fall.

It is no more than an illustration, and the results are of no great significance in themselves, since the data are rough and the coverage is incomplete. It indicates that the test of the hypothesis of an unchanged preference map is not a very powerful one.

In a monthly or quarterly index of price or volume, it is generally not a practical proposition to carry out such a comparison each time. Corresponding price-quantity data are generally available only at intervals, e.g., when there are budget studies or censuses of production. We must seek a compromise, on the following lines. At regular intervals, not generally longer than five years, a full comparison is made with price-quantity data for two years. Then, for interpolation between the two years and (more important) for extrapolation beyond the second year, a monthly or quarterly index number of Laspeyres or Paasche form can be constructed. Either form can be given a simple interpretation. The choice between them can be made on general considerations relating to the index in question. Often, however, the choice is dictated by the fact that data are currently available for only one of the forms, as with retail-price index numbers in the absence of regular budget studies.

The disadvantage of this process is that we do not get a long run of comparable index numbers. I regard this as inevitable, apart from very exceptional cases. I do not believe that index numbers can serve over very long periods. If the same form is used throughout, the difficulty of shifts in the "preference map" cannot be overcome. If the index is obtained by chaining together different forms, then a bias is to be expected, a bias which tends to be amplified over time. In general, index numbers are to be limited to short-run comparisons.

APPENDIX

EXPENDITURE ON BASIC FOODSTUFFS, AVERAGE URBAN WORKING-CLASS FAMILY OF STANDARD SIZE (4·57 EQUIVALENT ADULTS), UNITED KINGDOM.

| Item | July 1914 | | June 1918 | | July 1938 | |
|---|------------------|---------------------|------------------|---------------------|------------------|---------------------|
| | Quantity lbs. | Price d. per lb. | Quantity lbs. | Price d. per lb. | Quantity lbs. | Price d. per lb. |
| Bread and flour | 91 | 21 | 92 | 21 | 92 | 21 |
| Oatmeal, rice, etc. | 33·5 | 1·51 | 34·5 | 2·36 | 25·6 | 2·30 |
| Meat (joint, cuts, mince and sausages) | 2·70 | 2·59 | 2·70 | 5·0 | 1·00 | 4·65 |
| Butter | 6·8 | 8·6 | 4·4 | 18·6 | 7·2 | 11·8 |
| Eggs | 1·20 | 11·7 | 2·55 | 26·1 | 2·16 | 16·2 |
| Fresh milk (pints) | 9·2 | 1·79 | 11·7 | 3·03 | 16·0 | 3·31 |
| Butter | 1·70 | 14·4 | 0·79 | 29·7 | 2·74 | 15·5 |
| Margarine | 0·42 | 6·0 | 0·91 | 12·1 | 1·00 | 6·4 |
| Lard, suet, etc. | 1·00 | 7·5 | 0·78 | 18·0 | 1·00 | 8·2 |
| Cheese (by weight) | 0·84 | 8·9 | 0·41 | 20·7 | 1·00 | 10·3 |
| Eggs (each) | 13·0 | 1·00 | 9·1 | 4·0 | 20·2 | 1·62 |
| Potatoes | 15·6 | 0·70 | 20·0 | 1·25 | 15·7 | 1·31 |
| Tea | 0·68 | 11·3 | 0·57 | 33·3 | 1·00 | 29·3 |
| Sugar | 5·9 | 2·20 | 2·83 | 7·07 | 7·2 | 2·55 |
| Jam | 1·00 | 5·0 | 1·60 | 10·3 | 1·58 | 5·91 |

NOTES:—

Prices are average values, obtained by division of expenditure by quantity. Quantities in each period are adjusted to a family of standard size of 4.57 equivalent adults, the average found in the budgets collected in June 1918. (The scale of equivalence is: males over 14, 1.0; females over 14, 0.83; children 10-14, 0.83; children 6-10, 0.7; children 0-6, 0.5.)

Data for July 1914 and June 1918 from Cd. 8980, Table V. The figures for July 1914 are based on budgets collected in 1904, with adjustments for estimated changes to July 1914. The figures for June 1918 are from budgets collected at that date.

Data for July 1938 from Ministry of Labour *Gazette*, December, 1940, based on budgets collected at that date. The average size of family in the budget collection was 3.76 persons or 3.17 equivalent adults. Some of the quantities used here are partly estimated.

Hence:

Valuations (pence):

| <i>At prices:</i> | $\Sigma p_1 q_1$ | $\Sigma p_2 q_1$ | $\Sigma p_2 q_2$ |
|-------------------|------------------|------------------|------------------|
| p_1 | 245 | 223 | 295 |
| p_2 | 515 | 453 | 637 |
| p_3 | 348 | 327 | 414 |

and:

Index Numbers

| | <i>June 1918</i> (<i>July 1914</i> = 100) | <i>July 1938</i> (<i>June 1918</i> = 100) | <i>July 1938</i> (<i>July 1914</i> = 100) |
|-----------------|---|---|---|
| Price change: | | | |
| Laspeyres | 210 | 72 | 142 |
| Paasche | 203 | 65 | 140 |
| Volume change: | | | |
| Laspeyres | 91 | 141 | 120 |
| Paasche | 88 | 127 | 119 |

The comparison between 1914 and 1918 is Case I, 6. There is a rise in prices (measured at the 1918 level of real income) and a fall in the volume of consumption. The comparison between 1918 and 1938 is Case II, 5. There is a fall in prices (again measured at the 1918 level of real income) and a rise in the volume of consumption. The assumption of an unchanged preference map is not invalidated in either comparison. But we might have expected this assumption to be false for there were limitations on consumer choice in 1918 which (from our angle) might imply that we cannot take the preference map in 1918 as the same as in 1914 or 1938. All we can say, however, is that the preference map *may* have changed, but that we have no evidence. The Laspeyres and Paasche index numbers are uncomfortably far apart and that is all. Clearly our test of the hypothesis of unchanged preference map is not a powerful one.

The comparison between 1914 and 1938 is, perhaps, more interesting. Here we have Case I, 7. There is a rise in prices (measured at the 1938 level of real income) and a rise in the volume of consumption. The Laspeyres and Paasche index numbers are not far apart and put the price rise at about 40 per cent. and the volume rise at about 20 per cent. There is no evidence that the preference map has changed (though it *may* have done so). The price change of about 40 per cent. and the volume change of about 20 per cent. can be accepted with fair certainty (though the changes *may* be outside the limits shown according to which theoretical index is taken).

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Rehabilitation of Time Dimension of Investment in Macrodynamic Analysis¹

By S. C. TSIANG

I. INTRODUCTION

THE concept of the period of investment appears to have fallen quite into disfavour with modern economic theory. The reason for this is twofold. Firstly recent controversy on the pure theory of capital has revealed that the concept of investment period, as put forward by Jevons and Böhm-Bawerk, is incapable of exact measurement even under the stationary settings in which it was originally conceived. Some economists, notably Professor Knight, therefore argue for its abandonment on the ground that since it cannot be measured with any high degree of accuracy, its use should be avoided in work pretending to be of a scientific character.² Secondly it was pointed out that this concept, as originally put forward, is essentially static. It applies only to a stationary society, in which the stock of capital has been fully adjusted to the time preference of the population, so that no further accumulation is taking place, and there is no change in the environment, viz., in the technique of production, population, level of employment, natural resources, etc. Such stationary conditions, however, are far removed from the actual facts in a dynamic world of reality. In a dynamic world of constant changes, the difficulty of any reliable measurement of the investment period is indeed overwhelming.

With these limitations in view, the use of this concept has been avoided by many economists. The result is rather unfortunate; for it is apt to happen that the baby is cast away with the bath water. In consequence, there is a tendency to neglect altogether the time element of investment in certain theories of dynamic economics. As a notable example, it was quite overlooked by Lord Keynes in his classic

¹ This article is directly inspired by certain remarks in Professor J. R. Hicks's recent article, "World Recovery after War—A Theoretical Analysis," in *Economic Journal*, June, 1947, particularly pp. 12-14 thereof. After the manuscript was finished, it was pointed out to me by a friend, Professor Ta-chung Liu of Tsinghua University, that much of the same field has already been covered by two articles recently published in the *American Economic Review*, viz., "Expansion and Employment" by E. D. Domar, March, 1947, and "Capital Growth and Equilibrium" by T. C. Schelling, December, 1947, which I had not noticed at all, as those issues of that journal are not yet available at the meagre library of my own university. It seems to me, however, after my perusal of these two excellent articles, that Drs. Domar and Schelling have approached the problem from quite a different angle so that their emphasis is quite different from my own. Their approach is closely similar to that initiated by Mr. Harrod in his "Essay in Dynamic Theory", *Economic Journal*, March, 1939, whereas my idea rather originated from the suggestions in Mr. N. Kaldor's "Capital Intensity and the Trade Cycle", *Economica*, February, 1939 (esp. p. 57), and in the above-mentioned article by Professor Hicks. I have therefore decided to publish it for what it is worth practically as it was originally written.

² F. Knight: "On the Theory of Capital: In Reply to Mr. Kaldor", *Econometrica*, January, 1938.

work, *The General Theory*.¹ And since Lord Keynes exercises such a powerful influence over the economists of the present generation, what was neglected in his theory naturally tends to escape the attention of those who are brought up to think in terms of this theory. Nevertheless, as pointed out by Professor Hicks of late, it corresponds to one of the most serious gaps in Lord Keynes's *General Theory*.²

For although the average investment period of the total stock of capital may well be incapable of exact measurement in a dynamic world, it is none the less undeniable that all investments have a time dimension. And even though the average investment period of the total accumulated stock of capital may be of little concern to us, the time dimension of current investment is of vital importance to a dynamic theory of employment and activity. For the time dimension of the current investment marks the relationship between investment expenditure and its future contribution to the flow of final products. In Lord Keynes's theory, however, the attention is concentrated chiefly on the effect of investment upon the effective demand or income, whereas the effect of investment upon the supply of goods has been somehow left out of sight. That this neglect constitutes a serious gap in the *General Theory* can be readily observed when we make the following reflection upon his theory.

It is the chief tenet of the *General Theory* that given the propensity to consume of the community, expansion of the output of consumption goods cannot be sustained unless there is an appropriate increase in investment. It is also pointed out by Lord Keynes that since all production (except the provision of direct personal service) takes time, an increase in the production of consumption goods even by the most direct method must involve some investment in working capital in the form of raw materials and wages embodied in goods in process. The question may then be raised, would the investment in working capital which is necessarily involved in the expansion of the production of consumers' goods be sufficient to generate enough effective demand for the increased output of consumers' goods? Or to put it in another way, if the investment activity in a community should consist entirely of investment in working capital, would such investment be able to sustain the equilibrium between the "aggregate demand price" and the "aggregate supply price"? The answer is obviously negative; for a constant rate of net investment in working capital in consumption industries involves a constantly expanding flow of output, whereas a given rate of net investment, in working capital or in any other forms, can only generate a given level of effective demand in accordance with the multiplier principle. This is, of course, well known to anyone who is at all familiar with the Keynesian theory. What has surpris-

¹ Although Keynes did make some cursory discussion about the roundaboutness of productive processes in Ch. 16, "Sundry Observations on The Nature of Capital," in *The General Theory*; but that discussion does not seem to fit in at all with the main scheme of his theory.

² Hicks, *loc. cit.*, p. 157.

ingly enough so long passed unnoticed is that what is true of investment in working capital should also be true, though to a lesser extent, of all other forms of investment. The difference can only be one of degree. Why should investment in more durable forms be considered to be able to sustain a more or less stable equilibrium between the aggregate demand and the aggregate supply, whereas investment in working capital is considered to be unable to do so? If we pursue the reason for this supposed difference to the bottom, it can only be found to be that investment in working capital quickly yields an increase in the flow of final products and the ratio of the increase in final products to the investment expenditure to which the former is due is comparatively large, whereas investment in fixed capital contributes to the flow of final products an increment which bears a small proportion to the initial dose of investment and this only after a considerable lag of time. This is precisely what is meant by the rather vague statement that the period of investment of working capital is relatively short, while that of fixed capital is relatively long. Therefore, the conception of time dimension of current investment at least is of vital importance to the dynamic analysis of the equilibrium and disequilibrium between the aggregate demand and supply and the fluctuations of economic activity. It should not be thrown overboard just because its direct and exact measurement does not seem feasible.

It may indeed be vain to attempt the exact measurement of the so-called investment period, but it appears to me that the time dimension of any investment project may be reduced, for our purpose, to two crucial elements. The first is the lag of time which must elapse after the execution of the investment project before it will commence to contribute to the flow of final consumers' goods.¹ This time lag we shall call the 'fruition lag' of the investment. The second is the ratio of the planned contribution of a given investment project to final consumers' products per unit of time after its fruition lag to the amount of that investment, assuming that the investment is planned to be permanently maintained. This ratio we shall call the 'fruition coefficient' of the investment. This ratio need not be constant over time, since the planned contribution to final products is not always a constant stream. Most likely it will be increasing at first and then remain more or less constant. Thus the fruition coefficient of a given investment project may be different with reference to different time periods. During the 'fruition lag' this coefficient is, of course, zero.

It must be borne in mind here that all current inputs of factors and services, which do not add to the stock of capital, should be regarded as replacement or maintenance, since even in the consumption goods industries (with the possible exception of the direct provision of

¹ When we are considering the time dimension of investment from the point of view of a single firm, the final products referred to need not be consumers' goods, but are merely the finished products, in marketable form, of the firm concerned. But when we are considering the community as a whole, the final products referred to should be ultimate consumers' goods.

personal services) all the current input of the so-called co-operating factors, in so far as they do not add to the stock of working capital, are in fact but replacement for the working capital that has passed into finished consumers' goods. Thus all current inputs of factors and services are either fresh investment or replacement and maintenance.

Some difficulty may seem to arise with those investments which are not intended to add to the flow of final products but to reduce future inputs of co-operating factors, e.g., labour. Their fruition coefficient may appear to be always zero. But it is not so. For in such cases, the effect of the investment may be considered in two steps. First we assume that the enlarged stock of fixed capital, including the newly formed, is to co-operate with the same future inputs of co-operating factors, i.e., with the same amount of working capital. The future outputs of final products then must be increased. The fruition coefficient of labour-saving investment may then be regarded as the ratio of the increment of the flow of final products to the initial investment, assuming that there is no diminution in co-operating working capital later on. If in fact the co-operating working capital is reduced and there is consequently no increase in the flow of final products, we may regard it as the result of the fruition coefficient of the original labour-saving investment being completely offset by the negative effect of a later disinvestment in working capital. Thus every investment may be considered as having a positive fruition coefficient, unless it is of the nature of sheer unproductive hoarding of goods.

It is the purpose of this paper to attempt an explorative study of the significance of these two vital elements of the time dimension of investment to the maintenance of equilibrium between the aggregate demand for the aggregate supply of consumers' goods and the movement of economic activity.

II. A SIMPLIFIED MODEL

In order to bring out in strong relief the significance of the time dimension of investment in relation to the equilibrium between aggregate demand and supply, let us first consider a very much simplified model. We assume that all investments begin to contribute to the flow of final consumers' goods with a uniform time lag equal to one unit of time. In other words, all investments carried out in a given time unit begin to contribute to the output of consumers' goods in the next period. We assume further that after the lapse of the fruition lag, i.e., from the next period onwards, their contribution to the flow of final products is constant. We assume also that the multiplier effect of any variation in investment upon the level of effective demand works out fully within a single unit of time, and that the investment decisions are largely autonomous, such as the investment plans of a central planning authority, so that the so-called 'tertiary effect', i.e., the effect of the level of effective demand upon the investment decisions, is neglected for the time being.

Write q for the weighted average ratio of the planned contribution of the investment in a given time period to the output of consumers' goods per unit of time from the next period onward, i.e., the average fruition coefficient of the investment after the lapse of the fruition lag which is a unit of time.¹ Write O for the *ex ante* supply of consumers' goods in a given period, which is entirely the result of the inputs in the preceding period and cannot be altered by the current input in the same period as we have assumed above that all investments begin to affect the output of consumers' goods only in the next period. Let C be the aggregate consumption expenditure which is a function of the aggregate income I in the same period. It is assumed that the consumption function is more or less linear so that the marginal propensity to consume $\frac{dC(I)}{dI}$ or C' may be taken as constant. We

shall measure income, investment and consumption in terms of a composite unit of consumers' goods; i.e., money values are to be deflated with an index of prices of consumers' goods.

Suppose we start from a given time period (period 0) which is one of equilibrium in the sense that the effective demand for consumers' goods as determined by the investment during the same period and the propensity to consume is exactly equal to the aggregate supply price of the *ex ante* supply of consumers' goods. In the next period the output of consumers' goods will be increased, because of the net investment in the preceding period. And the increment in the supply of consumers' goods in the next period (period 1), which shall be written ΔO_1 will be equal to qI_0 where I_0 is the investment in period 0. If equilibrium between the aggregate demand for and supply of consumers' goods is to be maintained in the next period, consumption expenditure must increase by the same amount, i.e.,

$$\Delta C_1 = \Delta O_1 = qI_0$$

As we have assumed above that the multiplier effect works out fully within a single period of time, the level of income of a given time period can be regarded as a function of the investment in the same period. And consumption, being a function of income, can also be regarded as a function of investment in the same period. Thus the relation between the increments of consumption and investment expenditures can be written as follows :

$$\Delta C = \Delta I \times \frac{C'}{1 - C'}$$

where ΔC and ΔI are the increases in consumption and investment in the same period over the levels of consumption and investment respectively in the preceding period.

¹ q is therefore what Professor Hayek called the "Quotient". *Vide his Profits, Interest and Investment*, 1939, p. 49.

The condition for the equilibrium between the effective demand for and the supply of consumers' goods in the second period may then be re-written as

$$\frac{C'}{1-C'} \Delta I_1 = q I_0 \dots \dots \dots (1)$$

or to put it in a different form, we may write

$$\frac{\Delta I_1}{I_0} \cdot \frac{C'}{1-C'} = q \dots \dots \dots (1')$$

That is to say, the rate of increase of investment multiplied by the proportion in which the community would divide an increment of income between consumption and savings must equal the fruition coefficient of the investment in the preceding period.

If $\frac{\Delta I_1}{I_0} \cdot \frac{C'}{1-C'} < q$, it implies that in period 1 there is not sufficient effective demand to carry off the market all the supply of consumers' goods which the entrepreneurs designed to produce for sale. In the terminology of Lord Keynes, the aggregate demand price will fall short of the aggregate supply price as far as the consumers' goods are concerned. Either there will be involuntary accumulation of stocks or there will be a fall in the money prices of consumers' goods below their costs of production. In either case, the entrepreneurs in consumption industries as a whole will be making losses; for they do not get what they expected for the supply which they produced. They will therefore plan to contract their output in the next period again, which will involve disinvestment (non-replacement) of a part of their working capital. If other investment decisions are also rather sensitive to the losses sustained in consumption industries, a cumulative deflationary process could easily be set off. For the more the rate of increase of investment is retarded, the more is the condition $\frac{\Delta I_{n+1}}{I_n} \cdot \frac{C'}{1-C'} < q$ likely to persist. With the preceding period already one of disequilibrium, the continuation of such condition implies constant aggravation of that disequilibrium.

If on the contrary $\frac{\Delta I_1}{I_0} \cdot \frac{C'}{1-C'} > q$, it implies that the aggregate demand price for consumers' goods is greater than the aggregate supply price of consumers' goods. Entrepreneurs in consumers' goods industries will reap abnormal profits. They will therefore plan to expand their output, which would involve an increase in working capital. If other types of investment are also sensitive to high profits in consumption industries, the rate of investment will be considerably stepped up. But the more the pace of investment is accelerated, the more is the condition $\frac{\Delta I_{n+1}}{I_n} \cdot \frac{C'}{1-C'} > q$ likely to persist, which implies

that the disequilibrium will be further aggravated. A cumulative expansion is then on the move.

It is evident therefore that the average fruition coefficient of investment q plays a very important role in a dynamic economy. If the economy is to preserve a sort of moving equilibrium, the rate of increase in investment and the propensity to consume must stand in a certain relation with q . The greater q is, the greater must be the rate of increase of investment in order to ensure a sufficient effective demand for the expanding flow of final products.

If q increases without a corresponding increase in the rate of increase of investment, aggregate demand price would fall short of aggregate supply price and a downward movement may be brought about. Thus if there is indeed a sufficient tendency for q to increase (i.e., for the period of turnover of investment expenditures to decline) during the upswing of business cycles, as Professor Hayek attempted to show in his theory of the Ricardo effect,¹ that would be able to account for the downturn, even though the so-called Ricardo effect does not actually cause the rate of investment, or even the rate of increase of investment, to decline as Professor Hayek assumed it would.

It can now be clearly understood why, if the investment activity of a community consists chiefly of, say, investments in working capital in consumption industries, it would be very unlikely that the moving equilibrium between the aggregate demand and supply could be maintained for any length of time, even if the existence of large amounts of unemployed labour and capacity should make the expansion of working capital possible at the start. For in the case of working capital, q is very large. If we take as our unit of time a period long enough for the multiplier effect of investment to work out roughly to the full extent, say a year, which is Professor Hansen's estimate for the case of the United States,² the fruition coefficient for working capital in consumption industries would be quite considerable, say between 6 and 12, depending on the rate of turnover. On the other hand,

$\frac{C'}{1-C'}$ i.e., the ratio of the marginal propensity to consume to the

marginal propensity to save is, for countries like the United States and Great Britain, perhaps not much higher than 1, if we interpret consumption in the strict sense of consumption expenditure on home-produced goods and include as savings all other 'leakages' such as expenditure on imported goods and taxation.³

¹ F. A. Hayek, "The Ricardo Effect," *Economica*, May, 1942, pp. 127-52.

² *Ide* Alvin H. Hansen, *Fiscal Policy and Business Cycles*, 1941, p. 270.

³ Hansen, *op. cit.*, pp. 263 and 268. Keynes estimated that the "leakages" in periods of relative depression probably amount to 50 per cent. P. Samuelson found out by determining the regression of consumption outlay on national income produced that the marginal propensity to consume for the United States is 0.54. If we exclude consumption outlay on imports, the figure would be even smaller.

The equilibrium condition would then demand that investment should increase 6-12 fold per annum. It is, of course, extremely unlikely that so high a rate of increase of investment could be kept up. And suppose it were kept up, net investment in working capital, increasing at such rate, together with its replacement, would soon absorb all unemployed labour so that no further net investment in working capital would be possible any more. Then disequilibrium between aggregate demand and supply would inevitably break out.

The moral of the above preliminary discussion is already quite clear. When our primary concern is the threat of depression, which was the obsession of most economists in the period between the great depression and World War II (and probably still is in the case of some), we should see to it that the average fruition coefficient of investment does not get too large. But when our primary concern is no longer the danger of deflation and unemployment but that of a run-away inflation, our policy should be exactly the opposite. In the post-war world of shortages and inflation, economic policy makers in every country are facing the dilemma whether to allow investment for reconstruction to go ahead at full swing while risking a considerable inflation in prices, or to put a firm bridle on reconstruction investment with a view to avoiding price inflation while thus retarding the process of recovery. Our analysis above clearly tells us that if reconstruction investments have on the average a large fruition coefficient (i.e., a shorter investment period), it would be possible to proceed on the job of reconstruction with a comparatively faster pace without straining too much the stability of prices.

Our analysis, therefore, provides a clear rationale for the counsel of many eminent economists, notably Professor Hicks, who urges the importance of giving priority to investments of shorter process in the transition period of post-war recovery.¹

III. A MORE COMPLICATED MODEL

The above analysis, which has already given us a brief outline of the important role played by the time dimension of investment in the moving equilibrium of a dynamic economic system, is, however, much too simplified in comparison with the actual working of the economic system in the real world. For in reality, the multiplier effect is not likely to work out completely within a short period; nor is it likely that all investments begin to contribute to the output of consumers' goods with a uniform time lag, which happens to coincide with the time which it takes the multiplier to work itself out. In fact, investment projects differ not only in their fruition coefficients, but also in their fruition lags. Furthermore, their contributions to the flow of consumers' goods may not be constant over time; in other

¹ Hicks, *loc. cit.*, pp. 157-60.

words, the fruition coefficient of a given investment project may be different at different times. All those complications have to be taken into consideration, if our analysis is to fit more closely with reality.

In order to take fuller account of the dynamic complications, we shall divide time into smaller units. We shall adopt as our unit of time the average time interval between the receipt of income and the consumption expenditure out of it. It corresponds more or less to what Professor Hansen called the "Multiplier Period", which he, following Professor J. M. Clark, estimated at about two months for the United States.¹ If this time interval is the same for every income recipient, we can then say that all incomes received during a given time unit will not be expended on consumption until the next unit of time. In fact we shall make this assumption to facilitate exposition. Furthermore, we shall assume that this time unit being so short, no investment will begin to contribute to the output of consumers' goods with a time lag of less than one unit of time; in other words, that the fruition lags of all investments, including the investments in additional working capital, will be at least one unit of time.

Let us start as before from a period of temporary equilibrium, in which the aggregate demand price of consumers' goods is just equal to their aggregate supply price, and in which the level of income has reached the level as determined by the multiplier principle, i.e., the savings and investment in the Robertsonian sense are equal to each other, so that if the same rate of investment should continue in the next period and if there is no sudden change in the consumption function, the level of money income would have no tendency to change.

Write ${}_nq_t$ for the average fruition coefficient of investment taking place in period n with reference to another period t which comes after it (in other words, the fruition coefficient of the investment of period n after a time lag of $t-n$). Thus the fruition coefficient of the investment of our starting period (period 0) at period t will be designated ${}_0q_t$.

The increment in the *ex ante* supply of consumers' goods in period t as compared with the supply in period 0 would be

$$\begin{aligned}\Delta O_t &= {}_{t-1}q_t I_{t-1} + {}_{t-2}q_t I_{t-2} + \dots + {}_{t-n}q_t I_{t-n} + \dots + {}_1q_t I_1 \\ &\quad + {}_0q_t I_0 + Z_t \\ &= \sum_{n=1}^t {}_{t-n}q_t I_{t-n} + Z_t = \sum_{n=0}^{t-1} {}_nq_t I_n + Z_t,\end{aligned}$$

where Z_t represents the uncertain quantity by which the contribution to the supply of consumers' goods in period t of the investments carried out prior to period 0 might exceed, or fall short of, their contribution to the output of consumers' goods in period 0; i.e., $Z_t = \sum_{n=-1}^{n=t-1} {}_nq_t I_n - \sum_{n=-\alpha}^{-1} {}_nq_0 I_n$ (α being an arbitrary positive integer indicating the number of periods prior to period 0, which it is worth while to take

¹ Hansen, *op. cit.*, pp. 268-71.

into account). Since our periods are fairly short units of time (say 2-3 months), the fruition lags of certain portions of the investments prior to period o might possibly be greater than their time distances from period o and/or their fruition coefficients might be greater at t than at o . Consequently Z_t is likely to be a positive magnitude, though not likely to be very important.

On the other hand, the increment of consumption expenditure in period t (as compared with the level of consumption in period o) due to the increments of investments since period o can be written as follows:

$$\begin{aligned}\Delta C_t &= C' \Delta I_{t-1} + C'^2 \Delta I_{t-2} + \dots + C'^n \Delta I_{t-n} + \dots + C'^{t-1} \Delta I_1 \\ &= \sum_{n=1}^{t-1} C'^n \Delta I_{t-n} = \sum_{n=1}^{t-1} C'^{t-n} \Delta I_n,\end{aligned}$$

assuming that $C_n = C(Y_{n-1})$ and that C' is always constant.

Equilibrium between the aggregate demand price and the aggregate supply price of consumers' goods in period t requires that $\Delta C_t = \Delta O_t$, i.e.,

$$\sum_{n=1}^{t-1} C'^{t-n} \Delta I_n = \sum_{n=0}^{t-1} n q_t I_n + Z_t \dots \dots \dots (2)$$

Furthermore, for a moving equilibrium to be maintained over time, this condition must hold for any value of t , as it increases from zero. Thus the equation defines I as a function of t ; that is to say, it determines the warranted path of expansion of the rate of investment, provided that the fruition coefficients and the marginal propensity to consume are known. And it is obvious that the greater the fruition coefficients, the greater must be the rate of expansion of investment in order to maintain equilibrium.

Further observations may be made upon the condition of moving equilibrium. Since the consumption expenditure at any period is predetermined by the income in the preceding period and similarly the *ex ante* supply of consumers' goods is also the outcome of the inputs (including net investment as well as maintenance) during the preceding period, whether there will be equilibrium or not in period t is practically already determined one unit of time back by the investment in period $t-1$ and its fruition coefficient for the next period. Therefore the sufficient condition for moving equilibrium over time is not only that equation (2) must be satisfied at any given period, but also that the rate of investment in that period must be such as to ensure that in the next period the increase in consumption expenditure will be just sufficient to absorb the increase in the *ex ante* supply of consumers' goods; i.e.,

$$\begin{aligned}\Delta C_{t+1} - \Delta C_t &= \Delta O_{t+1} - \Delta O_t, \\ \text{or} \quad C_{t+1} - C_t &= O_{t+1} - O_t \dots \dots \dots (3)\end{aligned}$$

Now $C_{t+1} - C_t$ can be evaluated from the following equation.

$$\begin{aligned} C_{t+1} &= C'C_t + C'I_t \\ &= C_t + I_t - C_t + C'C_t - I_t + C'I_t \\ &= C_t + \{I_t - C_t(1 - C') - I_t(1 - C')\} \\ &= C_t + \{I_t - (C_t + I_t)(1 - C')\} \\ \therefore C_{t+1} - C_t &= I_t - (C_t + I_t)(1 - C'), \end{aligned}$$

which shows that C_{t+1} , being the additive result of the consumption expenditure out of the income created by consumption in the preceding period and the consumption expenditure out of the income created by investment in the preceding period, will exceed (or fall short of) C_t by the amount by which investment in period t exceeds, or falls short of, the amount that will be saved out of the total income received in period t .

Similarly O_{t+1} can also be expressed as a change from O_t :

$$\Delta O_{t+1} = \Delta O_t + \{q_{t-1} I_t + \sum_{n=-\alpha}^{t-1} n q_{t+1} I_n - \sum_{n=-\alpha}^{t-1} n q_t I_n\}$$

This equation shows that O_{t+1} exceeds O_t by (1) the contribution of investment of period t , plus (2) any increase (or minus any decrease) in the contributions of all investments prior to period t after the lapse of one more unit of time (α being a positive integer denoting the number of periods prior to period o , to which we may find it worth while to reckon back).

We can now rewrite the equation (3) as follows:

$$I_t - (C_t + I_t)(1 - C') = q_{t+1} I_t + \sum_{n=-\alpha}^{t-1} n q_{t+1} I_n - \sum_{n=-\alpha}^{t-1} n q_t I_n \dots (4)$$

Since both $\sum_{n=-\alpha}^{t-1} n q_{t+1} I_n - \sum_{n=-\alpha}^{t-1} n q_t I_n$ and C_t , which is determined by the income received one unit of time back, may be regarded as environmental data in period t , we may say that the equilibrium in period $t+1$ depends entirely upon the rate of investment in period t and the fruition coefficient of its investment for the next period. That is to say, for the equilibrium between aggregate demand and supply of consumers' goods to be maintained in the next period, the amount of investment in period t , which itself is assumed to be a period of equilibrium as far as the demand and supply of consumers' goods is concerned, must exceed the amount which the community would like to save out of the realised income of the same period¹ by the amount by which the *ex ante* supply of consumers' goods in the next period will be increased.

It is obvious, therefore, that the greater the fruition coefficient of the investment of a given period with respect to the next period,

¹ In Professor D. H. Robertson's terminology, it should be called the savings of the next period $t+1$.

the greater must be the rate of investment in that same period in order to preserve the equilibrium between the aggregate demand and supply for consumers' goods in the next period. Or to put it with a different stress, we may say that the greater the fruition coefficient, the greater may be the rate of investment without causing any excess of effective demand over supply. Indeed it is quite possible that an increase of the rate of investment in a certain period from an equilibrium position, which already satisfies the condition (4), will not necessarily produce any disequilibrium in the next period, provided that the increment of consumption expenditure in the next period induced by the income created by the additional dose of investment does not exceed, or fall short of, (1) the contribution to output of consumers' goods in the next period of that additional dose of investment, plus (2) any possible increase (or minus any decrease) in the output of consumers' goods in the next period due to an accompanying enlargement, or reduction, of the average fruition coefficient of all the other investment expenditures of the same period with respect to the next period, if such a change should be concomitant to the increase in the rate of investment.

To demonstrate this, we have simply to differentiate the equation (4) with respect to I_t . If

$$\frac{d\{I_t - (C_t + I_t)(1 - C')\}}{dI_t} = \frac{d\{q_{t+1}I_t + \sum_{n=-a}^{t-1} q_{t+1}I_n - \sum_{n=-a}^{t-1} q_t I_n\}}{dI_t} \dots\dots\dots (5)$$

then no disequilibrium will be produced in the next period by an increase in the rate of investment. Since C_t and $\sum_{n=-a}^{t-1} q_{t+1}I_n - \sum_{n=-a}^{t-1} q_t I_n$ may be regarded as given data in period t , this equation may be reduced to

$$\frac{dC'I_t}{dI_t} = \frac{d\{q_{t+1}I_t\}}{dI_t},$$

$$\text{or} \quad C' = q_{t+1} + I_t \frac{d\{q_{t+1}\}^1}{dI_t} \dots\dots\dots (5')$$

The left-hand side of this equation is simply the marginal propensity to consume. If we call the right-hand side of the equation the "marginal fruition coefficient" for the next period of the additional investment, we can then state that (1) if the marginal propensity to consume equals the marginal fruition coefficient for the next period,

¹ $\frac{d\{q_{t+1}\}}{dI_t}$ will generally be positive, since an increase in investment would raise the supply

price of credit by increasing the demand for loanable funds, or "investment finance funds", as Lord Keynes chooses to call it, and an increase in the price of credit would generally shorten the investment period of investments or increase their fruition coefficients and reduce their fruition lags.

an increase in the rate of investment will not produce any disequilibrium between the effective demand for and the supply of consumers' goods in the next period; (2) if the marginal propensity to consume is greater than the marginal fruition coefficient, the demand will exceed the supply in the succeeding period when the rate of investment is increased; (3) if the marginal propensity to consume is smaller than the marginal fruition coefficient, an increase in investment will actually produce a shortage of effective demand relative to the supply of consumers' goods in the next period.

IV

We have endeavoured above to show the importance of the role played by the time dimension of investment and how it can be introduced into the macroscopic and dynamic analysis of effective demand and output. The above analysis is necessarily incomplete, as it is only a primary venture into a hitherto relatively uncharted sea. Our effort is confined to the analysis of the influence of investment and its time dimension upon the equilibrium of the aggregate demand and supply of consumers' goods. We have neglected all other influences which must be taken into consideration in order to build a complete theory of industrial fluctuations. We have, for instance, quite neglected the influences of the level of activity and the disturbance of the equilibrium between the aggregate demand for and supply of consumers' goods upon the investment decisions of the entrepreneurs. We have in fact treated investment decisions as more or less autonomous throughout this paper. But these other influences can be easily fitted into the picture, if we want to broaden our investigation. And even as it stands, our analysis will be of direct practical applicability in a time when there is a large backlog of investment opportunities and entrepreneurs are straining on the leash of government control of private investment, so that the rate of investment is practically determined by the controlling authority (the situation which we find after the war in most countries with effective financial control). The moral for the economic policy makers in such countries is obvious: priority should be given to investments with comparatively great fruition coefficients and comparatively small fruition lags, and in the case where different methods of production are available for achieving the same objective the methods of shorter period of production are to be preferred, until the inflationary pressure is relieved.¹

The objection may perhaps be raised whether we have not over-emphasised the variability of the time dimension of investment. Indeed it is quite popular nowadays to regard the time dimension of investment as more or less fixed, being determined largely by the

¹ This should be done automatically by raising the rate of interest, as pointed out by Professor Hicks in the above-mentioned article (pp. 157-60).

technique of production. This, however, is an obvious over-simplification of facts. In a state of underemployment and excess capacity the average time dimension of current investments is capable of considerable variation as the ratio between investment in fixed capital and investment in working capital alters. Even in a state of full employment, where the possibility of large increase in working capital is limited, there is still a wide scope for the variation of the time dimension of investments through changes in the ratio of investment in capital goods industry to the direct investment in consumption goods industry. And finally, even in the same industry there is always a considerable range of different methods of production of longer and shorter processes to choose from. It may indeed be true that the time dimension of the entire stock of capital of a given community can only be altered very gradually, but the time dimension of net current investment during a given short period is certainly highly flexible. And it is the time dimension of current investment that is relevant to the dynamic theory.

Taiwan.

Period Analysis and Inflation¹

By RALPH TURVEY

IN recent writings on the theory of inflation,² most of the authors have laid considerable weight on the connection between wage rates and prices. For theoretical purposes it is useful to represent this connection by using a "price elasticity of wages" or an "adjustment coefficient". If the discussion is in terms of a democratic state where full employment gives the trade unions considerable bargaining power, and where some important wage contracts incorporate an index number sliding scale provision, some such concept seems to be sufficiently realistic for its use to be justifiable. We shall therefore use the price elasticity of wages without adding anything to the concept. The purpose of the present paper is to examine the interaction of this elasticity with different patterns of expectations in terms of a very simple model. In Section I the essence of the model is analysed statically. In Section II the nature of a period analysis which will serve for discussion of inflation is examined, and thereafter, in Section III, the model is employed dynamically.

SECTION I

Let us assume that an initial equilibrium and full employment situation is upset by the occurrence of inflationary pressure. This could consist either of a fall in aggregate supply or of a rise in aggregate demand. For the purpose of this paper we shall consider the former possibility and examine the effects of a general fall in productivity. The argument which follows may readily be transposed to fit the case of, for example, an increase in the propensity to consume.

In order to construct a simple model, we shall make the following rather drastic assumptions:

- (1) It is permissible to speak of "price" and "output" rather than of "the price level" and "the level of output".
- (2) Output is constant at the initial level minus the decrease due to the fall in productivity. This implies that all factors have a zero elasticity of supply, i.e., that full employment is a precise concept.
- (3) There is no foreign trade and no government.

¹ I have received much help in the preparation of this paper from discussions with Messrs. Baumol, Aukrust, Hansen and others.

² Cf. Koopmans, "The Dynamics of Inflation" (*Review of Economic Statistics*, 1942); Smithies, "The Development of National Money Income under Inflationary Conditions" (*Q.J.E.*, Nov. 1942); Keynes, "How to Pay for the War" and Polak "On the Theory of Price Control" (*Review of Economic Statistics*, 1945).

- (4) Investment is fixed in real terms, i.e., in the prices of the initial equilibrium situation. There are no changes in stocks.
- (5) Total income (equals output) is divided between "wage earners" on the one hand and "capitalists" on the other hand, the latter having the residual share.
- (6) Wage earners spend the whole of their income on consumption and capitalists spend a constant proportion.

We shall use the following symbols :

| | | |
|------------------|--|---|
| X = output | } measured at the price ruling in the initial equilibrium. | c = proportion of their income consumed by capitalists. |
| W = wage bill | | |
| I = investment | | |

We can now write the equality of Supply and Demand in the initial situation as :

$$\begin{array}{ccccccc} X & = & I & + & W & + & c(X - W) \\ \text{Output} & & \text{Investment} & & \text{Wage earners' consumption} & & \text{Capitalists' consumption} \end{array}$$

or :

$$\begin{array}{ccc} I & = & (1 - c)(X - W) \\ \text{Investment} & & \text{Saving} \end{array}$$

If the fall in productivity reduces output by ΔX , from X to $(X - \Delta X)$, then price must rise. We shall denote the *percentage* rise in price by P . Thus the total value of output will become $(X - \Delta X)(1 + P)$, and investment in money terms will become $I(1 + P)$. If the price elasticity of wages is α , then the wage bill will be $W(1 + \alpha P)$, since employment is assumed to be unchanged.

Putting all these things together, we can show the equality of Supply and Demand in the new situation, where output has fallen, as follows :

$$\begin{array}{ccccccc} (X - \Delta X)(1 + P) & = & (1 - c)(X - W)(1 + P) & + & W(1 + \alpha P) & + & c[(X - \Delta X)(1 + P) - W(1 + \alpha P)] \\ \text{Supply} & & \text{Investment} & & \text{Wage earners' consumption} & & \text{Capitalists' consumption} \end{array}$$

From this we can find the proportional increase in price :

$$P = \frac{\Delta X}{W(1 - \alpha) - \Delta X}$$

This tells us that a new equilibrium is possible (P positive and finite) if there is some rise in prices which will reduce the wage bill in real terms by the same amount that output has fallen. The price increase will be smaller the greater the wage bill in the initial position, the less output falls and the smaller the price elasticity of wages.

It will be noticed that under the conditions assumed the fall in the real income of wage earners equals the fall in output whatever the

value of the price elasticity of wages; strong trade union action may make a new equilibrium impossible; it will not affect real wages.¹ The income in real terms of the capitalists, on the other hand, remains unchanged, since output and the real wage bill fall by the same amount. This explains why it is unnecessary to consider the change in costs due to the fall in productivity: constant real capitalists' income and smaller output implies higher profit rates.

The situation will, of course, be very different if there is price control, for then the cost considerations do come into play. Let us examine the main differences by temporarily assuming that price is allowed to rise only by an amount equal to the increase in costs per unit. This means that the gross profit per unit is constant and hence that total capitalists' money income falls in the same proportion as output.

For any given set of values for W , ΔX and α , it is evident that with price control price will rise far less, and that there will always be a finite price increase.² Furthermore, strong trade unions can reduce the fall in real wages, since a given money increase will cause a less than proportionate rise in price. Thus in inflationary conditions price control is necessary if the distribution of income is not to be altered unfavourably to wage earners.

The fact that with price control price will not rise to infinite heights even if there is a unit price elasticity of wages, does not mean that equilibrium will be attained. There will be a permanent excess of demand over supply, since the fall in capitalists' income and the rise in the wage bill will raise the average propensity to consume.

SECTION II

In order to examine the path of price through time we shall use period analysis. This may be crudely defined as the splitting of time into periods such that the events of any one period can, apart from the effects of exogenous changes, be explained with reference to the events of previous periods. It is thus a step-by-step analysis of changes through time. It is essential that the period shall be so short that all plans existing at its beginning are (as far as possible) carried out and no changes in plans are made. If the period were longer, then the events in the first part of a period could affect the events in the later part of the period, through inducing a change in plans, and the step-by-step analysis would be lost.³ The method most commonly used in period analysis has been called the "Disequilibrium Method" by Professor Lindahl.⁴ This proceeds by considering:

¹ If investment is fixed in money terms, not real terms, this will not be the case, since the greater α the greater will be P and hence the greater the reduction in investment in real terms.

² Assuming $\alpha_1 < 1$.

³ Cf. Brems, "Om Stockholmskolans Begreber og Metoder", Section I (*Ekonomisk Tidskrift*, 1944).

⁴ *Studies in the Theory of Money and Capital*, p. 60.

- (1) Points of time, when *ex post* estimates for the period just ended are made and prices and sales plans for the next period are fixed (i.e., existing plans are altered or confirmed). Simultaneously these prices are made known to buyers who fix their purchasing plans.¹
- (2) Periods, when purchasing and sales plans are put into effect as far as is possible.

It follows from this that the only possibility of disappointment of expectations or plans concerns quantities.² Producers, for example, may sell more or less of their products than they had anticipated and some wage earners may get jobs when they had expected to be unemployed. Inconsistency of price expectations does not enter in, since it is assumed that prices are fixed by sellers and made known to buyers at the beginning of the period, when they too fix their plans. This assumption, however, does not mean that prices are determined by the demand schedules of buyers and the supply schedules of sellers. If that were the case then sales and purchases *ex ante* would equal sales and purchases *ex post*, and we should be using static analysis, not dynamic analysis.

The possibility of including price changes in the analysis is, however, not completely excluded. The prices fixed by sellers for the forthcoming period can be taken to be determined by the sellers' estimate of costs and their demand expectations. These can be taken to be based on sales and factor requirements of the preceding period, factor prices being known since they are fixed at the beginning of the period. The step-by-step analysis of (1) plans, (2) their putting into effect, (3) the ascertainment of results and (4) the fixing of plans for the next period, can thus include price changes so long as it is assumed that sellers fix prices, i.e., in conditions other than perfect competition.

For the purpose of the present paper the Disequilibrium Method is unnecessarily complicated, for we have assumed a given output and no stock changes, and we are interested primarily in price movements. We shall therefore use what Lindahl calls the "First Equilibrium Method",³ where price is determined *within* the period by market supply and demand. This obviously requires that *ex ante* demand and supply be schedules instead of amounts.⁴ Now since we take output to be constant and stock changes to be zero, the supply schedule will have an elasticity of zero. The same, on our assumptions, applies to the investment demand schedule. The consumption demand schedule will have an elasticity of unity, since given the expected income of wage earners and capitalists, consumption demand is fixed in money terms.

¹ Cf. Palander, "Om 'Stockholmskolans' Begrepp och Metoder", p. 121 (*Ekonomisk Tidskrift*, 1941).

² Cf. Palander, *op. cit.*, p. 122.

³ *Op. cit.*, p. 65. Wage rates, however, we shall assume to be fixed at the beginning of the period.

⁴ Cf. the discussion of *ex ante* savings by Palander, *op. cit.*, p. 123.

and a milliner every Autumn and Spring. In order to obtain a unit period, therefore, we must either take the highest common factor of the various intervals or else assume that all economic units reconsider their plans simultaneously at equal intervals. Of these two possibilities the first involves considerable difficulties, for if, say, farmers reconsidered their plans at the ends of periods 1, 41, 81 . . . , milliners at the ends of periods 3, 20, 37 . . . , and wage earners at the ends of periods 2, 4, 6 . . . the description of a sequence would be extremely complex. For most purposes the second alternative is therefore preferable in spite of its violence to reality. This assumption that all economic units ascertain *ex post* results and fix their plans simultaneously and with the same frequency does not exclude us from introducing different speeds of reaction if we wish to. We could, for example, assume that A bases his plans upon the *ex post* results of the previous period, while B bases his upon the results of the last period but one.

SECTION III

We now proceed to dynamise the system presented in Section I. In doing so we shall consider only those cases where an equilibrium is possible.¹ We want to know whether the equilibrium will in fact be reached and how it will be reached. In order to find out something about these matters, we have to introduce a dynamic equation for the wage bill and for capitalists' expected income. Taking the former first, we shall assume that the wage bill for any period t equals the wage bill in the initial position increased by a proportion α (the price elasticity of wages) of the price increase up to the previous period, i.e., it equals

$$W(1 + \alpha P_{t-1})$$

where the subscript refers to the period.² We assume that wages are fixed at the beginning of the period and are known to both wage earners and capitalists when they make their plans.³ Since there is full employment this means that wage earners' *ex ante* income equals their income *ex post* and that capitalists know what their wage bill will be.⁴

Let us now suppose that in period 1 production unexpectedly turns out to be ΔX less than in previous periods (and that it remains at the lower level thenceforwards). Demand will be the same as in period 0 since, by assumption, no changes were expected. If investment were fixed in money terms it is evident that price would rise just so much as exactly to offset the fall in production, leaving *ex post* Demand

¹ I.e., those cases where $W(1-\alpha) > \Delta X$.

² α of course refers to wage rates, but since we assume continuous full employment, the wage bill increases in exactly the same proportion as wage rates.

³ Thus we are using the Disequilibrium Method as regards wages.

⁴ We ignore the possibility that individual employers may hope to hire more labour than is available, and so plan an output and expect an income greater than can be realised. If the individual employer cannot bid up wages this possibility will be only temporary since repeated disappointment of employment plans over several periods will eventually lead to a downward revision of those plans.

and Supply unchanged in money terms. If, on the other hand, as we assume here, investment is fixed in *real* terms, its *money* value will be increased by the rise in price, and *ex post* Demand and Supply will actually be greater in money terms than in period 0.

In period 2 there will be further repercussions.¹ Firstly, if the price elasticity of wages is positive, wages and hence the consumption demand of wage earners will be increased. Secondly, there will presumably be some change in expected sales and hence in capitalists' expected income (which equals expected sales minus the wage bill) and in their consumption demand. In order to carry out the analysis further we therefore have to make some assumption about the pattern of sales expectations. To start with, let us suppose that the pattern is what we may venture to call "Robertsonian", i.e., expected sales of any period equal the actual sales of the previous period. Then the price expected by sellers in period 2 will equal the price actually realised in period 1.

This price will, of course, be higher than the price ruling in the initial position. But unit costs will be higher too, both because of the fall in productivity and because of the rise in wages. If the proportional increase in costs exceeds the proportional excess of the expected price over the initial price then a *fall* in planned output may be expected since the expected percentage gross profit margin is thereby lower than the percentage gross profit margin of the initial situation and the latter margin was, by assumption, an equilibrium one.

In order to see under what conditions this will happen, let us for a moment suppose that the price elasticity of wages is zero. Now if investment is fixed in money terms, as we saw before, the rise in price in period 1 will just offset the rise in costs, leaving the value of sales and hence the gross profit margin unchanged. If investment is fixed in real terms price will rise more than this, so that the percentage gross profit margin will increase. This increase (which will be greater the larger is the proportion of investment to output) will therefore allow some increase in money wages without reducing the percentage gross profit margin below its initial level. More precisely, the reduction in profitability will only occur if the price elasticity of wages is greater than the ratio of investment to output in the initial situation.²

We have thus found a case where a high price elasticity of wages is deflationary. Let us now consider the case where the elasticity is low enough to be inflationary. On the basis of our various assumptions we can write the *ex post* equality of supply and demand in any period, t , in the form of a difference equation as follows :

¹ We may note the possibility pointed out to me by Professor Hawtrey that the fall in productivity (rise in costs) may cause a reduction in investment and so have deflationary effects.

² I.e., for deflation to be avoided we require $\alpha < \frac{I}{X}$. This ignores the rise in unit overhead costs due to a reduction in output.

$$\begin{aligned}
 (X - \Delta X)(1 + P_t) &= \underbrace{I(1 + P_t)}_{\text{Investment demand}} + \underbrace{W(1 + \alpha P_{t-1})}_{\text{Wage earners' consumption demand}} \\
 &\quad + \underbrace{c[(X - \Delta X)(1 + P_{t-1}) - W(1 + \alpha P_{t-1})]}_{\substack{\text{Expected sales} \\ \text{Capitalists' consumption demand}}} \underbrace{\quad}_{\text{Wage bill}}
 \end{aligned}$$

P_t will rise asymptotically to the equilibrium level:

$$P_t = \frac{\Delta X}{W(1 - \alpha) - \Delta X}$$

We shall now consider what happens when the pattern of expectations is what we may call "extrapolative": the sales expected for any period equal the sales of the previous period plus some proportion, β , of the increase in the previous period. Expressing this in symbols, the expected sales for any period, t , equal:¹

$$(X - \Delta X)(1 + P_{t-1}) + \beta(X - \Delta X)(P_{t-1} - P_{t-2})$$

Comparing this case with the last case, we see that since the price expected for period 2 will be greater than the price realised in period 1, the possibility of a fall in profitability is less. The equation for the equality of Supply and Demand in any period t when this possibility is not realised can be written:

$$\begin{aligned}
 (X - \Delta X)(1 + P_t) &= \underbrace{I(1 + P_t)}_{\text{Investment demand}} + \underbrace{W(1 + \alpha P_{t-1})}_{\text{Wage earners' consumption demand}} \\
 &\quad + \underbrace{c[(X - \Delta X)(1 + P_{t-1})(1 + \beta) - \beta(X - \Delta X)(1 + P_{t-2}) - W(1 + \alpha P_{t-1})]}_{\substack{\text{Expected sales} \\ \text{Capitalists' consumption demand}}} \underbrace{\quad}_{\text{Wage bill}}
 \end{aligned}$$

If we continue the assumption that an equilibrium is possible, then for practical purposes there are only two alternatives that we need consider.² The first is that price climbs steadily up to its equilibrium level in a manner not very dissimilar from the case of Robertsonian expectations. The second alternative is that price oscillates about its equilibrium level, first rising above it, then sinking below it and so on.

This wiggle-waggle is difficult to explain in words, but we can give an intuitive idea why the rate of price increase falls and then turns into a price decrease. Let us take the case where β is unity so that the

¹ If $\beta = 0$, then we have the case of "Robertsonian" expectations.

² Since the characteristic equation cannot have negative roots, it being: $[W(1 - c) + cX - \Delta X]x^2 - [\alpha W(1 - c) + (1 + \beta)c(X - \Delta X)]x + [c\beta(X - \Delta X)] = 0$, where the co-efficients of x^2 and x are positive and negative respectively and where $[c\beta(X - \Delta X)]$ is positive, except in the exceptional case where $\Delta X > (X - W)c + W$, which case we may ignore.

sales expected in any period equal twice the sales of the previous period minus the sales of the last period but one. Once the rate of price increase begins to fall the latter item will grow relatively more than the former so that expected sales and hence capitalists' consumption demand will grow at a decreasing rate. After some periods, therefore, price will increase by only a very small amount. But if price is then above the equilibrium price it cannot persist: in the next period price will have to fall in order to equate Supply and Demand.

So far the argument is not objectionable. But the idea that the downturn will introduce a price fall which turns itself into a second upswing, and so on recurrently, is rather too much to swallow. We must look at our model to see what part of it to alter. The most obvious part to take is the determination of wage rates: the price elasticity of wages cannot be assumed to remain unchanged when the direction of price movement is reversed, for wages are more sticky downwards than upwards. Let us therefore suppose that, for a number of periods after they have reached their peak, wages remain constant. This will not prevent prices from falling, for they fall because they are at a level which cannot be maintained, though it will slow down their fall because the consumption demand of wage earners will remain high. Sooner or later, however, they will fall to a point which makes a continuation of the present level of production unprofitable because, at that point percentage gross profit margins begin to fall. This point will be reached when price has fallen sufficiently to make the excess of the price wage ratio now, over its value in the initial equilibrium system, less than the proportionate rise in unit labour costs caused by the fall in productivity.

As soon as production and employment fall, consumption demand will fall too. Thus we have the result that the fall in productivity may produce a large inflationary price increase which gradually flattens out and turns into a violent deflationary movement with unemployment appearing to some extent. This very simple "breakdown" mechanism is quite unconnected with any changes in investment, for we have assumed investment to be fixed in real terms and constant, so we have not had to consider the determinants of capital intensity, the acceleration principle or other such "tools" of trade cycle theory. In effect, the mechanism is but a formalisation of the idea that a speculative boom must eventually break down. Prices rise more than is necessary to reduce demand in real terms by an amount equal to the fall in production, so depression results.

Summarising the results of this section, we have, with a simple macroeconomic model of a closed economy where wages are closely related to prices and where investment is constant, shown some of the possible results of a fall in productivity¹ when full employment existed initially. We mentioned five such results:

¹ Or of a rise in the propensity to consume or an increase in investment.

A. Equilibrium impossible

- (1) Price rises continuously.
- (2) A fall in output and employment occurs because price rises less than costs immediately after the fall in productivity.

B. Equilibrium possible

- (1) The equilibrium is gradually reached.
- (2) The same as A (2) above.
- (3) Price shoots upwards past the equilibrium and then turns downwards, producing a fall in output and employment.

SECTION IV

It remains to consider the relationship of our simple model to the complexity of the real world. Here we shall do no more than list some of the main modifications that seem called for.

Firstly, our assumption that real investment is constant is obviously unrealistic. As regards investment in fixed capital, however, the assumption is justified because we aim to consider factors in an inflationary process other than changes in such investment. If we relax the assumption that there are no stock changes, two dynamic factors must be introduced. In the initial stages of the upswing, stock depletion may slow down the price increase, while later on, replacement and speculative accumulation of stocks may add to the inflationary pressure.

Secondly, the treatment of expectations is as arbitrary as is customary in modern dynamic theory. The only defence of our crude assumptions is that we know of no more realistic alternative.

Thirdly, there are a number of other dynamic factors, such as the investment in stocks mentioned above, which should be brought into any complete analysis. Various lags could be introduced, such as a delay in the increase of investment expenditure after the price rise.

Lastly, a complete analysis requires the introduction of public finance and foreign trade into the model. They both have a certain degree of stabilising influence.

The London School of Economics.

The National Insurance Funds

By ALAN T. PEACOCK

I

THE FINANCIAL ADMINISTRATION OF THE NATIONAL INSURANCE FUNDS

UNDER Part III, sects. 35 and 36 of the National Insurance Act, 1946, provision is made for the investment of funds accumulated under the new National Insurance scheme through the excess of contributions over benefits. Into the National Insurance Fund will be paid over all contributions by employers, employees and self-employed persons together with the Exchequer Supplement and any surplus will be invested by the National Debt Commissioners as directed by the Treasury. The latter is authorised by Parliament to invest these funds in savings bank funds. But quite apart from the National Insurance Fund, which is the working balance of the scheme, the Act by sect. 36 also brings into being another new fund known as the National Insurance (Reserve) Fund. Into it will be paid over not only any surplus from the working balance but also all the assets of the various state insurance and pensions schemes in operation before the passing of the Act and which are now superseded by the new scheme. The transferred funds are listed in the Tenth Schedule of the Act. They include the Unemployment Fund set up under the Unemployment Insurance Act, 1935, the various Health Insurance Funds and Pension Accounts, in all some 13 separate funds authorised by legislation within the last 12 years. Apart from these assets, the Reserve Fund will take over all assets of Approved Societies "which are attributable to business under the enactments repealed by this Act or under corresponding enactments previously repealed". Figures of the total assets transferred are not yet available but the total of securities held by the Health Insurance Funds and by the Unemployment Fund on July 4th, 1948, amounted to approximately £723 m.¹ (cf. Table I below).

The first important change in financial administration has thus introduced considerable simplification. It will no longer be necessary to audit a large number of separate accounts set up under a long series of Acts. Secondly, the pooling of reserves will allow a greater flexibility in financial policy.

The second major change in financial administration is in the control of the funds themselves. Prior to the passing of the Act, control of

¹ Since this article was written the National Debt Commissioners have published a complete list of the securities held by both Funds at 31st March, 1949. A digest of this list has been added to the Appendix as Table 4, and some comparisons are made with the figures in the text.

reserve funds was generally vested in the Minister responsible for the particular social security scheme in question. But at least one important part of the British social insurance system enjoyed a remarkable autonomy in financial matters. This was, of course, the Unemployment Fund. It is perhaps permissible here to write a short obituary notice for its redoubtable overseer, the Unemployment Insurance Statutory Committee, so as to contrast the new system of financial control with the old.

The Unemployment Fund¹ was reconstituted under the Unemployment Acts of 1934 and 1935 after a period of such severe unemployment that the Fund accumulated a deficit of £105 m. by June, 1934. The Unemployment Insurance Statutory Committee was set up under Sect. 55 of the Act of 1934 as an autonomous body, as Lord Beveridge² put it, "authorised and required to maintain the solvency of the scheme by the use of financial powers uncontrolled by any Minister and not itself responsible to Parliament."

Apart from important administrative functions, its powers over the Unemployment Fund were considerable. It was obliged to report on the solvency or otherwise of the Fund annually and had to discharge the accumulated debt at the rate of £5 m. a year. It had two important powers exercised independently of parliamentary or ministerial control. Firstly, it had complete control over the accounts of the Fund so that the accrued surplus or deficit incurred by the Fund in any given year was a matter for the Committee to decide. Parliament or the Minister of Labour had to take the 'declared' surplus or deficit as given. Secondly, the recommendations of the Committee as to the disposal of the declared surplus had to be embodied in an Order by the Minister of Labour and presented to Parliament. If the Order was approved, then it took effect without the passing of further legislation. The freedom of the Committee granted in respect of financial control enabled it to retire the accumulated debt at a faster rate than was required by statute and to recommend changes in the rates of benefits or contributions or changes in the period of benefit or 'waiting time'. In fact, the debt was finally expunged in March, 1941, thirty years before the statutory time limit ended.

In practice, as is well known, the Committee under the chairmanship of Sir William Beveridge carried out a minor revolution in the technique of public finance in this country. Accepting the then modern view that the major cause of heavy unemployment in the inter-war years was cyclical in nature, it worked on the '8-year budget' principle³ and began to incur surpluses in the middle and late '30s to cover

¹ An interesting account of the pre-war activities of the Committee is given in *The Unemployment Insurance Statutory Committee*, Politica Pamphlet No. 1 (1938) by Sir William Beveridge. The Annual Reports of the Committee published annually in House of Commons Papers up till 1948 give detailed information of contemporary unemployment problems.

² Beveridge: *Ibid.* p. 5.

³ "In principle, the Fund should balance over a Trade Cycle": *Second Report of the Unemployment Insurance Statutory Committee.*

prospective deficits during the anticipated 'downswing' and 'depression' phases of the cycle. This would have avoided the necessity of reducing benefits and/or raising contributions during periods of heavy unemployment. This form of contra-cyclical finance along Keynesian lines anticipated present budgetary practice by almost ten years. Of some historical interest, perhaps, are the estimates made by the Committee of Economic Information contained in the Annual Reports of the Insurance Committee of the average percentage unemployment anticipated in the period 1934-44 made before rearmament had begun. Thus on the advice of the C.E.I., the Committee were to allow for an average percentage of about 17 per cent. of the insured population unemployed over the whole cycle of whom approximately 48 per cent. would be eligible for unemployment benefit.¹

With the passing of the National Insurance Act, however, the Unemployment Insurance Statutory Committee has, of course, ceased to exist and there is no equivalent body constituted under the Act for the purposes of exercising supervision over the Funds. The National Insurance Advisory Committee set up under sect. 47, whose constitution contained in the Fifth Schedule closely follows that of the older Committee with regard to administrative matters, has no financial powers at all. What is more surprising is the fact that very limited powers are given to the Minister of National Insurance in this connection, although sect. 35 states that the two new Funds are "under the control and management" of the Minister. As we shall see, effective control has passed to H.M. Treasury.

The Treasury has the following powers conferred upon it by the Act :

(a) It can control directly the investment of the surplus of receipts over expenditure both for the National Insurance Fund and the Reserve Fund, although, of course, Parliament authorises investment only in savings bank funds.

Although the act of investment is performed by the National Debt Commissioners,² the latter are "as assiduous in their attendance" at meetings of that august body as the Archbishop of Canterbury at meetings of the 'Board' of Trade. A quorum of three members is sufficient to make decisions effective and the usual quorum consists of the Chancellor of the Exchequer, the Governor and the Deputy-Governor of the Bank of England!

(b) The Treasury under sect. 3 of the Act can by Order laid before Parliament raise or lower contributions in order to stabilise employment on the lines of the scheme outlined in Appendix II of the White Paper on Employment Policy (Cmd. No. 6527 (1944)). This practice will, of course, directly influence the size of both Funds.

¹ See H.C. 50 (1936).

² Cf. Debate in the House of Commons, 19th July, 1948 (*Parliamentary Debates* (H. of C.), Vol. 454.)

(c) The accounts of the Funds are to be prepared under Treasury direction and they will be presented annually to Parliament, not by the Accountant General of the Ministry of National Insurance, but by the Comptroller and Auditor General.

(d) The Interim and Quinquennial Reports by the Government Actuary on the financial condition of the Funds are prepared for the Treasury, not the Minister, and the former will be responsible for the laying of these Reports before Parliament. The Treasury may also direct that actuarial reports on the state of the Funds be made more frequently than is required by the Act.

Thus this second major change in administration suggests that the Funds are officially regarded as within the Treasury orbit of influence and will be considered as a useful instrument of budgetary policy. Later in this article, it is hoped that some indication can be given as to how far these Funds can be utilised to implement official financial policy.

II

INVESTMENT POLICY AND THE UNEMPLOYMENT FUND¹

In the Appendix, in addition to a list of securities held by the Funds on July 4th, 1948, there are set out in Tables 1 and 2 data compiled from the Reports issued by the Unemployment Statutory Committee and those issued by the National Debt Commissioners on the composition and state of the Unemployment Fund and the relation between contributions, benefits and the accounting surplus. For an understanding of the possible uses of the National Insurance Funds in future years, it is necessary to make the following comments by way of explanation and interpretation of these tables :

(a) Even allowing for debt redemption, the Unemployment Fund has grown considerably over the last 13 years. This has been the major factor in the growth of the funds now included in the National Insurance Funds. This has been mainly the result of deliberate policy influenced primarily by rather pessimistic forecasts of the average rate of unemployment throughout the 'cycle' period. These views were not altered by the fact that war had broken out ; if anything, they were, according to the Committee, reinforced by events. Thus in their 8th Report in 1941 the Committee considered that the unemployment problem immediately after the war would be aggravated by changes in industrial location and by the readjustments necessary in connection with demobilisation of the Armed Forces. When this

¹ From the point of view of investment policy, the Unemployment Fund is more important than the others. Table 1 illustrates clearly the change in the relative size of the two main groups of funds and the rapid rate of accumulation of the Unemployment Fund both during and after World War II.

view was queried by the T.U.C., the Committee expressed the view that "as individuals we have full sympathy with the hopes expressed. We believe that much could and should be done in the aftermath of war to maintain employment rather than to pay for unemployment. The Committee does not base its financial administration upon such hopes. Even in the past year [1940] of unparalleled Government expenditure and unsatisfied demand for man-power it has not proved possible to reduce expenditure on unemployment benefit below the large figure of £26 m. in addition to about £16 m. on unemployment assistance. That in itself is a reason against excessive hopefulness as to what may be accomplished by Government action in solving the critical problems of reconstruction."

What a contrast between the gloomy prognostications of the Committee and the views of their Chairman¹ some four years later! However, the Government Actuary in calculating the cost of unemployment benefit under the new National Insurance scheme allowed for the fairly high average unemployment percentage of $8\frac{1}{2}$ per cent. of the working population. The fact remains that the policy of amassing considerable surpluses in the Fund was continued during and after the war despite the fact that the average percentage of workpeople unemployed fell to less than 1 per cent. of the insured population during the latter half of the war and when the Committee were relieved by statutory order from having to report on the financial condition of the Fund in 1943.²

(b) Not only was there a surplus in every year from 1935 onwards but from 1940-1948 the employers' and employees' contributions, quite apart from the Exchequer grants, more than covered expenditure. In 1943, for instance, the surplus of receipts over expenditure was above £70 m. while the surplus of employers' and employees' contributions was over £45 m. Even in 1947, the year of the fuel crisis, while expenditure was high, the employers' and employees' contributions still exceeded expenditure by £20 m.

This overall surplus was a considerable item both during and after the war in the tables³ showing the Finance of the Central Government Deficit. In 1943, the surplus on the Unemployment Fund together with the combined Health Funds⁴ surplus formed over 21 per cent. of the total 'Finance through Government Agencies' which offset

¹ In *Full Employment in a Free Society*, 1944, where 3 per cent. "appears a conservative estimate rather than an unduly hopeful aim to set for the average unemployment rate". This figure is used in the estimates in Mr. Kaldor's Appendix to the book. Apparently, however, the Government Actuary's figure given above was adopted on Lord Beveridge's recommendation! Cf. however *Beveridge Report*, Part IV, and Appendix A, paras. 14 and 28.

² *Unemployment Insurance (Emergency Powers) (Amendment) Regulations, 1943* (S. R. & O., 1943. No. 167.)

³ Cf. Cmd. 7099/47. Table 24, p. 38. Also Cmd. 7649/49 where the surplus for the year 1948 is given as £115 m.

⁴ The surpluses incurred by the National Health Insurance Funds during the years 1940-46 were: 1940 £9 m.; 1941 £8 m.; 1942 £12 m.; 1943 £9 m.; 1944 £5 m.; 1945 £3 m.; 1946 £1 m.

public borrowing in the calculation of the 'real' budget deficit in that year. In 1946, the surplus on both sets of funds amounted to £69 m. and, apart from drawings on the U.S. and Canadian lines of credit, this was the only positive item in this section of the accounts. In fact, this total exceeded the total amount raised through government agencies by £45 m. for extra-budgetary receipts and the Local Loans Fund incurred considerable deficits during that year.

If one regards the funds as being accumulated for the benefit of the insured to cover periods when benefits may have to exceed receipts from contributions, then the wartime policy of accumulation really amounted to the implementation of the compulsory savings policy of Lord Keynes¹ in its most radical form, although not on anything like the scale envisaged by him. It is perhaps interesting to note that Keynes suggested that the "machinery of collection would be the same as for National Insurance in the case of wage-earners".² A large part of this compulsory form of saving was thus performed by lower income groups, for up till the inception of the new scheme in 1948 most of the contributors were workpeople with incomes below £410 per annum.

(c) Lastly, during this period of accumulation there were considerable changes, not only in the magnitude of the investments, but also in their distribution.

There is probably little doubt that the surpluses incurred in both the Health Insurance and Unemployment Funds were used by the National Debt Commissioners in order to 'underwrite' issues of War Bonds and other short-dated securities during the war. While it is true that funds only became available in small amounts from week to week, it is conceivable that the surpluses could have been invested temporarily in Treasury Bills and could then be reinvested in longer-dated securities at short notice once sufficient funds had accumulated. It is doubtful if there could be much objection to this procedure during the war when such measures were designed to aid the War Savings campaign. In fact, it is admitted in the Report of the National Health Insurance Accounts for 1943 that such accumulated surpluses as might have been set free for redistribution to Approved Societies were retained, "it being in the national interest during the war that sums ordinarily set free should remain invested with the National Debt Commissioners."³

More controversial, however, has been the investment in long-dated Treasury and Government Guaranteed Stock. The Unemployment Fund, for instance, held £25 m. 2½ per cent. Stock 1975 and after 'Daltons' on the 31st March, 1947, and increased its holdings to £81 m. by July, 1948. On July 5th, 1948, the day the funds were transferred

¹ See Keynes, J. M.: "Income and Fiscal Potential of Great Britain": *Economic Journal*, December, 1939, pp. 631-2 and Appendix 1.

² Keynes, J. M.: *Ibid.* p. 637.

³ See *House of Commons Papers* No. 29, 1944.

to the new National Insurance Funds, the long-dated stock held by the Unemployment Fund and Health Insurance Funds totalled about £176 m. of which £149 m. was held in the form of $2\frac{1}{2}$ per cent. 'Daltons' and £27 m. in British Transport Guaranteed Stock.

Mr. Glenvil Hall,¹ Financial Secretary to the Treasury, called upon to defend Government policy with regard to this precedent, put forward the following arguments :

(a) The Unemployment Funds were liquid enough to make it possible to invest in longer-dated stock.

(b) "Moneys of this kind must be invested in gilt-edged or Government guaranteed securities which are next door to, if not entirely gilt-edged."

(c) "The National Debt Commissioners have bought what would give the best yield at the time when they bought" (i.e. if liquidity had been sacrificed, this had been compensated for by the increase in yield).

(d) "The amount normally handed over by the Minister of National Insurance each week is £400,000."² (i.e. the weekly surplus was not sufficient to have any appreciable influence upon the gilt-edged market.)

If we accept the Government's denial of the charge that this switch-over to long-term investment was not carried through with a view to 'rigging' the market, then it would appear to have been particularly foolish to invest in long-dated stock which had already become the source of acute political controversy. Moreover, in as much as these funds are considered as trust funds, then it cannot be argued that the sufficient liquidity of the Unemployment Fund justified investing for 'yield' in $2\frac{1}{2}$ per cent. 'Daltons' at a time when it was apparent that considerable capital losses were to be incurred.³ A further point to notice is that the rate of accumulation of surpluses in the Unemployment Fund in the six months prior to July, 1948, was approximately £1.75 m. a week while the surplus of the National Insurance scheme in 1948 as a whole was £115 m. or an average rate of accumulation of over £2 m. a week. This is a considerably higher rate than that announced in the Financial Secretary's statement given above and suggests that the Funds may have influenced the gilt-edged market. Unfortunately, it is impossible to determine if considerable movements in and out of Treasury Bills occurred during this latter period, although ostensibly the published figures indicate that in the Unemployment Fund there was no change in Treasury Bill holdings from December, 1947, to July, 1948. (see Table 3.)

¹ See *Parliamentary Debates* (H. of C.) Vol. 450, Cols. 2508-2519 and Vol. 454, Cols. 162-184.

² The first three points were made in the Debate of the 14th May, 1948. This last point was made in the later Debate on the 19th July, 1948. See *Parliamentary Debates* cited above.

³ For instance, as early as 31st March, 1947, while the nominal value of the Fund's holdings of $2\frac{1}{2}$ per cent. 'Dalton's' was £24.7 m., their market value dropped to £23.6 m.

III

THE RÔLE OF THE FUNDS IN PUBLIC FINANCE

In any insurance scheme, the type of reserve policy introduced will depend upon the risks to be met. There are considerable differences in the reserve policy of private non-life insurance companies, depending upon the type of insurance involved, but generally speaking reserves are accumulated for two purposes: to provide against contingencies of an unforeseeable character and to build up reserves so as to earn interest. The interest receipts of private insurance companies may be their most important source of income to meet claims, dividend payments and administrative costs. But the reserve policy of a social insurance scheme of a comprehensive character such as the British scheme cannot be modelled on that of an individual insurance company. For one thing, the nature of the risks themselves, particularly unemployment, must affect both the possibility of accumulating a large reserve (unless it is possible for the Government to carry out a highly successful full employment policy) and also the distribution of the interest-earning assets. In view of the special political as well as economic significance of such a scheme, investment policy is likely to be carefully controlled and it is not likely that yield will be considered the main object of investment.¹ Furthermore, in private insurance it is possible to adjust individual premiums to individual risks but in social insurance considerations of equity demand that it is necessary not only to standardise benefits irrespective of the risks involved but also to provide benefits which are related to a subsistence standard of living, while the average premium paid by the insured person has to be supplemented by employers' contributions in most cases and by an Exchequer Supplement. Under such circumstances, 'national insurance' ceases to be insurance at all and, as Dr. Hicks² has put it, "the insurance element in National Insurance is, and always has been, a little bogus . . .". So long as it is compulsory and there is no adjustment of premiums to risk, it is, in fact, a social service financed from three separate sources—a direct tax on employees and self-employed persons in the nature of a poll-tax, an indirect tax on employers and general taxation. Thus so long as the rate of accumulation of the funds is dependent upon taxation, the type of reserve policy introduced must have important repercussions on the financial structure of this country.

An attempt to study reserve policy in the National Insurance scheme receives little help from official sources. The National Insurance Fund is the working balance of the scheme, as is apparent from the Act and from the Reports of the Standing Committee on the National Insurance Bill, but the functions of the Reserve Fund are not precisely defined. It is obvious, for instance, that the Reserve

¹ Cf. detailed discussion of the problems of social insurance investment policy in the I.L.O. publication, *Investment of Social Insurance Funds* (1939).

² Hicks, J. R.: *The Problem of Budgetary Reform*. Oxford University Press, 1948.

Fund does not perform the functions of its counterpart in private insurance for the interest payments on the securities held are unlikely to be large. The calculations of the Government Actuary¹ indicate that, on the assumption of compound interest at 2½ per cent., the yield from investments will be about £21 m. per annum for the next thirty years. These figures may require considerable modification if the present rate of accumulation continues. The income from investments was £24 m. in 1948, representing about 5 per cent. of total receipts. But it is to be noticed that these interest payments are largely a transfer payment from the Central Government, for most of the securities held are part of the National Debt and thus the greater part of the payment is financed out of general taxation.

It might be argued that there is a possible parallel with private life insurance in that the justification for accumulating surpluses is based upon the fact that the increasing costs of pensions arising from the ageing of Britain's population can be met in future years. It is clear, however, that this is not accepted official policy; for the actuarial estimates upon which the present scheme is based indicate that the increased costs of pensions in future years will be met by an increase in the Exchequer Supplement and not by capital consumption. The argument may have some force, however, if the Government is persuaded to raise the weekly pension rate at any time by an appreciable amount.

There is, however, one part of the Act which directly involves the Reserve Fund and that is Section 3. (See Part I *supra*), by which the Treasury can by Order direct that contributions can be varied "with a view to maintaining a stable level of employment". What part the Reserve Fund would play in this form of contra-cyclical finance is difficult to say, for the Act gives no indication of its scope. It is obvious that it is based on the scheme outlined in Appendix II of the White Paper on Employment Policy, but whereas the latter scheme suggested that there should be a unique connection between the percentage of unemployment and the contribution rates of employers and employees, so that when the former rose the latter automatically fell in a definite ratio to it, the relevant section of the Act makes no mention of this 'thermostatic' control of the level of purchasing power and the costs of entrepreneurs. We are left in the dark as to whether 'maintaining a stable level of employment' implies that the scheme will operate for months or for years, during conditions when there is a slight deviation from 'full employment equilibrium' or when mass unemployment due to underconsumption arises. Consequently, we can only consider under what circumstances the Reserve Fund is likely to be drawn upon and what implications this will have for public finance in general.

If we accept the statement of the Minister of National Insurance that "the idea is that this is only one method by which, at a time when there is an obvious slackening of trade, the purchasing power

¹ See Cmd. 6730/46.

of the people can be increased,"¹ then it is conceivable that over a short period and in a situation where there was only a moderate rise in the unemployment percentage, the fall in receipts due to the cut in contribution rates and the increase in expenditure due to unemployment benefit payments could probably be met out of the working balance and the Reserve Fund would remain intact.

On the other hand, if a more ambitious kind of contra-cyclical finance is envisaged, involving the subsidising of consumption over a period of years, then presumably the Reserve Fund would be called upon to finance the scheme. But here a particular difficulty is encountered. The unloading of securities on the gilt-edged market for the purpose of providing cash for the financing of consumption subsidies might involve capital losses and a rise in interest rates which would be out of harmony with contra-cyclical financing in general.² It may be that this objection is not a very strong one. Much would depend upon the distribution of investment, the speed at which assets would have to be realised and the timing of their sale. But if present investment policy continued, it is quite possible that there might be difficulties in the way of unloading the type of securities held by the Reserve Fund on the gilt-edged market. If this were the case, then the Treasury or other Government Departments would probably have to buy the stock or lend cash on the security of the Funds, which would simply mean that a contra-cyclical scheme operated via National Insurance would really develop into a form of deficit spending. It is outside the scope of this article to discuss whether, given the fact that the finance of this type of contra-cyclical scheme is no different from any other, this form of consumption subsidy is as desirable a way of dealing with problems of fluctuations in the level of employment as, say, tax remissions. One might venture to suggest, however, that the scheme outlined in the Act is something of an anachronism, for one might well be sceptical whether the threat to full employment in this country for many years to come is likely to come from pronounced underconsumption. Other causes, such as technical breakdowns associated with shortages of circulating capital, particularly imported raw materials, may be more important, unless there is a radical change in the terms of trade.

In the past the special problems of unemployment insurance justified a separate budgetary policy. But in the case of a National Insurance

¹ Standing Committee for the National Insurance Bill, 28th February, 1946.

² There is now a considerable literature on schemes of contra-cyclical financing involving the use of social security reserves. Opinions are divided about the effect of disinvestment on interest rates. J. M. Clark in his famous article on the "Appraisal of the Workability of Compensatory Devices" (reprinted in *Readings in Business Cycle Theory*) considers the objection made above a very important one. On the other hand, Professor Seymour Harris in *Economics of Social Security* (1941) and Mrs. U. K. Hicks in her *Finance of British Government* (1936) both consider that the unloading of securities presents no appreciable difficulty. It must be remembered that Mrs. Hicks was writing prior to World War II when the rate of accumulation of the Funds was very small.

scheme, which, financially considered, is a social service, do the uses of the Funds described above really indicate that the continuance of separate National Insurance accounting quite outside the framework of Government finance is at all necessary? Would it not be simpler and more sensible to make Treasury control more explicit and to integrate the National Insurance accounts with the Revenue and Capital Accounts of the public sector? Apart from the simplification this would produce in the complicated system of Government accounting it would get rid of the elaborate ritual of transferring balances from the Exchequer to the Funds and back again in order to keep up the pretence that the scheme is based on insurance principles. Furthermore, it is quite possible that, as in the Unemployment Fund, the Reserve Fund might be a source of considerable embarrassment to the Government if, as the funds accumulated, representatives of the main contributors such as employers' organisations and trade unions began to demand reductions in contributions and increased benefits¹ which might not be warranted by the current financial situation.

Political considerations may invalidate this suggestion and some semblance of independence may thus be important. Socially considered, whatever method of financing the scheme is employed the acceptance of the principle of collective risk, particularly with regard to unemployment, necessitates the preservation of the vital distinction between unemployment insurance and unemployment assistance, between the payment of benefit as a right and the payment of benefit as an act of charity. But even from the economic point of view it may be wise to retain the present system of separate accounting. As indicated in Part II of this article, the accruing surpluses in the Funds form a considerable part year by year of the 'true revenue surplus' in the public sector and thus they play an important part in budgetary policy of a disinflationary character. This fact has only been revealed, as it were, by accident, with the gradual evolution of social accounting and in the recent attempts to distinguish between the conventional and true budget surpluses. While the existence of a separate National Insurance scheme may obscure the fact that this addition to the true budget surplus is also made through taxation, the mere fact that a large part of the receipts are labelled 'contributions' and are collected by the Ministry of National Insurance and not the Inland Revenue Department means that a certain elasticity is introduced into the tax structure. The Reserve Fund is thus a convenient repository for this addition to the surplus, which at the moment is an important balancing item in the nation's Capital Account. It may well be that the continued acceptance of high rates of taxation to finance, among other things, social insurance and to continue a disinflationary policy may be brought about by the continued prevalence of the mistaken

¹ In the House of Commons on the 27th April, 1948, the Minister of National Insurance was urged to raise unemployment benefit in view of the growth in the accumulated funds. See *Parliamentary Debates* (H. of C.), Vol. 450, 1947-48.

notion that the National Insurance scheme is genuine 'insurance' and not another social service financed by a compulsory levy. While, therefore, there may be strong reasons for maintaining the National Insurance scheme as if it were financially independent, it remains, nevertheless, an elaborate and in some ways a rather inefficient instrument for the redistribution of income.

The London School of Economics.

APPENDIX

TABLE 1. TOTAL SECURITIES HELD BY THE UNEMPLOYMENT FUND AND HEALTH INSURANCE FUNDS, 1935-1948.

| | | (£ m.) | | | | | |
|-----|------------------------------|--------|-------|------|------|------|------|
| | | 1935 | 1937 | 1939 | 1942 | 1945 | 1948 |
| (a) | Unemployment Fund | 23 | 63·5 | 62 | 158 | 372 | 551 |
| (b) | Health Insurance Funds | 122 | 125 | 131 | 146 | 173 | 172 |
| (c) | TOTAL | 145 | 188·5 | 193 | 304 | 545 | 723 |

NOTES

1. Sources : Annual statements on Unemployment Fund Investment Account and National Health Insurance Funds, House of Commons Papers.
2. The figure for 1948 refers to state of funds on 4th July, 1948. Other figures refer to 31st December of the relevant year.
3. The Health Insurance Funds include: (a) Investments of Health Insurance Funds for England, Wales and Scotland; (b) Investments of the " Central Fund " (cf. 10th Schedule of the National Insurance Act) and (c) Investments of the " Unemployment Arrears Fund " (cf. sect. 158 (1) of National Health Insurance Act, 1936).

TABLE 2. RELATIONSHIP BETWEEN RECEIPTS, EXPENDITURE, SURPLUS AND DEBT IN UNEMPLOYMENT FUND, 1935-1947.

| Year | Receipts | Expenditure | (£ m.) | | Surplus | Outstanding Debt |
|------|----------|-------------|--------------------------|--------------------------|---------|------------------|
| | | | Employers' Contributions | Employees' Contributions | | |
| 1935 | 64·8 | 53·9 | 42·6 | — | 10·9 | 105·5 |
| 1936 | 65·7 | 48·1 | 43·2 | — | 17·6 | 104·7 |
| 1937 | 64·9 | 43·6 | 42·7 | — | 21·3 | 103·1 |
| 1938 | 65·9 | 58·1 | 42·7 | — | 7·8 | 81·5 |
| 1939 | 67·3 | 50·7 | 43·8 | — | 16·6 | 77·1 |
| 1940 | 67·1 | 33·1 | 44·7 | — | 34·0 | 39·0 |
| 1941 | 76·6 | 12·7 | 50·4 | — | 63·9 | — |
| 1942 | 79·0 | 6·6 | 51·3 | — | 72·4 | — |
| 1943 | 77·8 | 4·3 | 49·0 | — | 72·5 | — |
| 1944 | 75·9 | 5·6 | 47·1 | — | 70·3 | — |
| 1945 | 79·4 | 11·9 | 45·2 | — | 67·5 | — |
| 1946 | 97·9 | 29·3 | 49·3 | — | 68·6 | — |
| 1947 | 92·3 | 31·6 | 52·7 | — | 60·7 | — |

NOTES

1. Source : Reports of Unemployment Insurance Statutory Committee 1935-48.
2. The figures relate to the 31st December of each year, including the figure for Investments. The latter do not correspond, therefore, with the total investments in Table 3.
3. Receipts include employers', employees' and the Exchequer contribution together with interest from investments.
4. The Surplus is the accounting surplus and may not correspond to the Committee's ' declared surplus ' for the particular year in question.

TABLE 3. DISTRIBUTION OF SECURITIES HELD BY THE UNEMPLOYMENT FUND ON 31ST MARCH OF EACH YEAR FROM 1935-1948.

| Year | Treasury Bills | Ways and Means Advances | (£ m.) Short-Dated Securities | | Percentage Internal Unfunded National Debt | Percentage Total National Debt |
|------------------|-------------------|-------------------------------|--|--|--|---|
| | | | (War Bonds, Treasury Bonds, Con- version Stock) | Medium and Long-dated Securities | | |
| 1935 | 1.2 | — | 9.6 | — | .22 | .13 |
| 1936 | 1.2 | — | 23.2 | — | .7 | .32 |
| 1937 | — | 1.2 | 42.2 | — | 1.2 | .55 |
| 1938 | 1.2 | — | 41.0 | — | .86 | .51 |
| 1939 | 0.1 | — | 42.1 | — | 1.1 | .51 |
| 1940 | 1.0 | — | 26.2 | — | 0.58 | .28 |
| 1941 | 1.0 | — | 32.4 | — | 0.47 | .29 |
| 1942 | 1.0 | — | 102.3 | — | 1.7 | .73 |
| 1943 | 13.6 | — | 162.4 | — | 1.33 | .91 |
| 1944 | 20.0 | — | 231.6 | — | 1.5 | 1.2 |
| 1945 | 20.0 | — | 292.9 | — | 1.7 | 1.3 |
| 1946 | 29.9 | — | 289.3 | 3% Savings Bonds 77.2 | 1.95 | 1.7 |
| March 1947 | 14.45 | 4.75 | 252.3 | (a) 2½% and 3% Savings Bonds 157.2 (b) 2½% Treasury (Guaranteed) Stock 197½ and after 24.7 | 2.1 | 1.8 |
| December 1947 | 20.0 | — | 252.3 | (a) 2½% and 3% Savings Bonds 171.4 (b) 2½% 197½ and after 65.0 | — | — |
| March 1948 | 20.0 | — | 252.3 | (a) 2½% and 3% Savings Bonds 171.4 (b) 2½% 197½ and after 79.9 (c) Transport 3% Stock 1978-88 8.3 | 2.2 | 2.1 |
| July 1948 | 20.0 | — | 252.3 | (a) as above (b) 80.9 (c) 26.7 | — | — |

NOTES

1. Sources: Statement of Funds in Unemployment Investment Account issued annually by the National Debt Commissioners. Finance Accounts of the U.K.: Annual Statements. (For National Debt figures on 31st March of each year.)
2. Classification of securities is based on that of the London and Cambridge Economic Service as contained in Bulletin XXVII, Vol. 1, February, 1949, New Statistics 74-75. "Redemption is assumed at the later date if the price is below par and at the earlier date if it is above par. Short-dated have up to nine years to run, medium-dated about 15-30 years".
3. All securities are quoted at their nominal values. Reference to the market value of certain long-dated securities is made in the text.
4. The National Debt percentage figures in Table 3 are for the total National Debt excluding external debt. In calculating the percentage of Unfunded Debt for 1947 and 1948, those securities held by the Fund which are part of the Funded Debt are excluded.

TABLE 4. NATIONAL INSURANCE FUNDS INVESTMENTS, MARCH, 1949.

| | | |
|---|--|--------|
| | | (£ m.) |
| (a) | Investments held in the National Insurance Fund | 196.6 |
| (b) | Investments held in the National Insurance (Reserve) Fund : | |
| i | British and Northern Ireland Government Securities .. | 668 |
| ii | Securities Guaranteed by British Government | 145 |
| iii | Dominion and Colonial Stocks | 5.4 |
| iv | Local Authority Stocks, Mortgage Loans and Housing Bonds | 10 |
| (c) Total Securities held in both Funds | | 1,025 |

NOTES

1. Source : House of Commons Papers No. 173, 1949.
2. The National Insurance Fund consists entirely of short-term debt with nine years or less to run including Treasury Bills, Exchequer Bonds, National War Bonds and National Defence Stock.
3. The Reserve Fund mainly consists of medium and long-dated stock including £201 m. of 2½ per cent. Treasury Stock 1975 or after in Group i, and £137 m. of British Transport 3 per cent. Guaranteed Stock 1978-88 in Group ii.
4. The securities in Groups iii and iv were transferred from the National Health Funds of Approved Societies. These securities are not authorised as investments for the Fund (Cf. Part I, para. 1, of this article) and may be disposed of by the Commissioners (Cf. Section 66 (4) of the Act).
5. It is clear from this table that even allowing for the transfer of funds from the Approved Societies and for the accumulation of investments since the 4th July, 1948, there is an obvious discrepancy between this published total and that given for 1948 in Table 1. This is accounted for by the transfer of securities from the Pensions Funds (Cf. Part III. Tenth Schedule of the Act) but no figures are available for the securities held by these Funds prior to their transfer to the National Insurance Funds. It is probable that the Pensions Fund Accounts, as well as holding a considerable proportion of the medium-dated securities in Group i, also contained the larger part of the Government Guaranteed Securities in Group ii transferred under the Act.

Evolution of the Exchange Control

By A. H. SMITH

It is a fact sometimes forgotten by those whose business brings them into touch with the Exchange Control Regulations now existing in the United Kingdom, that up to the outbreak of war in 1939 such Regulations were non-existent. The very comprehensive publication of the Bank for International Settlements, which at that time ran into many volumes and reproduced, not only in the original but in multi-lingual translations, the official texts of the Foreign Exchange Regulations existing in all important countries, contained a mere page regarding the United Kingdom and that concerned only with the movement or ownership of gold. With the outbreak of war the position changed immediately and, in many different forms, a most comprehensive set of regulations was gradually produced, framed to meet the particular requirements of the period and subjected to revision as conditions changed. Even the shortest sketch of the stages through which these regulations went would be beyond the scope of this article, but it is well to emphasise at the outset that the regulations have not at any time been officially published as a comprehensive whole, and that it has throughout been for the banks and those immediately concerned with the practical operation of the controls to interpret the various Orders emanating from the Bank of England or the Treasury, and to incorporate them in the operating system. From the point of view not only of the foreign observer, but also of most critics in this country, it often seems strange that no cut-and-dried answer can be obtained to many categorical questions as to what can and what cannot be done under the regulations. The authorities of the Bank of England are, it is true, always accessible for enquiries, but beyond indicating certain general requirements they will, as a rule, refuse to give a general ruling, and demand submission of a specific case upon which they will give their yes or no. Even the terms which have come to be accepted in City circles as defining certain features of the organisation, such, for instance, as the nomenclature of the groups into which the various countries have been divided, have not been officially laid down by the Bank of England, and it is doubtful if the style "bi-lateral" account or "residual" account has ever actually received the official blessing of Threadneedle Street.

Thus, during the war, there grew up a system of foreign exchange control touching every branch of commercial activity and conveyed through a long series of Statutory Rules and Orders which commenced in 1939, and it was only in 1947 that an Exchange Control Act was, in fact, introduced on the Statute Book.

The cause of this new movement by the authorities was, in the first place, the general desirability of producing a legal basis for the whole network of orders and restrictions, but particularly the fact that, under the provisions of the Anglo-American Financial Agreement of 1945, which set out the terms and conditions of the American Loan, it was virtually necessary to have the backing of some such legislation. The consolidation involved was, moreover, closely associated with the obligations of the United Kingdom as a member of the International Monetary Fund. The first declared object of the Fund was "to promote exchange stability, to maintain orderly exchange arrangements, to avoid competitive exchange depreciation, to assist in the establishment of a multi-lateral system of payments in respect of current transactions between members and in the elimination of foreign exchange restrictions which hamper the growth of world trade". This shows the extent to which the membership of the International Monetary Fund implied the need for an overhaul of the foreign exchange restrictions. The American Loan Agreement provided for increasing freedom in the use of sterling for current transactions, but recognised that other sterling transactions not arising out of current commercial affairs would still have to be controlled. It stipulated that by the 15th July, 1947, arrangements should be completed whereby sterling resulting from current transactions should be restored to complete convertibility.

The idea of this provision was, of course, that one of the most important factors obstructing world trade would thereby be removed and the area of multi-lateral trade enlarged, but it was not intended that holders of old sterling balances should use such balances to pay for imports from the sterling area while at the same time expecting the British authorities to provide convertible exchange in respect of their exports to the sterling area. In so far as "old" balances were concerned, the Agreement laid down a programme for the gradual liquidation of such balances as had accrued prior to the coming into force of the Loan Agreement and consequently of the new convertibility clause of the 15th July, 1947. Both on the American and the British sides it was agreed that, while they would not, in principle, apply restrictions on payments and transfers for current transactions after the 15th July, 1947, they approved that these provisions should not apply to balances of third party countries and their nationals which might have been accumulated before the date when the Agreement became effective.

The special obligation of convertibility accepted by the United Kingdom authorities in ratifying the American Loan Agreement involved an undertaking that, not later than one year after the effective date of the Agreement, "unless in exceptional cases a later date is agreed upon after consultation", the United Kingdom would complete arrangements making sterling receipts from current transactions of all sterling area countries freely available for current transactions in any area without discrimination. The United Kingdom and the

U.S.A. further agreed that, subject to similar reservations, they would remove all restrictions on payments and transfers of those sterling balances held by non-residents of the sterling area received in respect of current transactions.

This meant in effect that sterling balances arising out of current transactions could be freely converted into dollars, while sterling acquired as a result of capital operations, or resulting from a capital investment of earlier date, remained subject to restriction and could only be converted under special licence and in exceptional circumstances.

The intention of the United Kingdom Government was to conclude agreements with the various countries for an early scaling down of outstanding sterling balances dating from the war, with the understanding that part thereof would be available freely for current transactions in any currency area.

In the months which preceded the "zero" day for the Loan Agreement a long series of monetary agreements was negotiated. They varied in detail, but generally provided for a fixed rate of exchange and for the holding by the Central Bank on either side of the currency of the other up to a fixed amount, the surplus being in some important cases convertible into gold.

It was a preliminary step towards re-establishment of a general system of convertibility that in the autumn of 1946 the Argentine was given the right to convert currently earned sterling into dollars, if desired. The reason behind this concession was that the Argentine had expressed her unwillingness to go on exporting to us in excess of her imports from the sterling area and to allow the net payments to accumulate in the form of inconvertible sterling. The institution of a transferable account system which covered a wide range of countries was a further development of this pre-convertibility period and much of the system thus built up remains still intact.

By July, 1947, the group of Transferable Account countries included the Argentine, the Belgian Monetary Area, Brazil, Canada, Newfoundland, Czechoslovakia, the Dutch Monetary Area, Egypt and the Sudan, Ethiopia, Finland, Iran, Italy, Norway, the Portuguese Monetary Area, the Spanish Monetary Area, Uruguay and Sweden, while in the case of a number of small countries convertibility was also granted subject to the individual merits of each case. Negotiations for an agreement were at the time still in progress with France, Denmark and some other countries, while a certain number of countries remained unapproachable in so far as a payments agreement was concerned by virtue of the political conditions then still ruling in them.

It is clear that, in entering into a transferable account agreement with any given country, the British Treasury had to rely on the co-operation of the monetary authorities of that country and to assume that these latter would exercise a strict control and permit only

sterling balances proved to be the result of current trade to be transferred. On this point it appears, however, that a complete mutual understanding or a *modus operandi* was not achieved, and the result was the virtual breakdown of the system which had been inaugurated. It must be remembered that the economic scene in the United Kingdom was at the time unpromising and still under the shadow of the coal shortage of the early months. It had been estimated that the cost of the conversion privilege to the United Kingdom in outgoings would work out at not more than \$200 million in the year. It was, however, found that between the 15th July and the 12th August the cost averaged as much as \$115 million a week, while in the last six days prior to suspension of the conversion privilege the total amounted to \$237 million. During this short period it had become increasingly clear that many countries which were holding sterling balances now become transferable and not immediately needed to pay for the purchase of British goods, were using such sterling to cover their dollar shortages. Talks were immediately instituted in Washington with the United States Government and on the evening of the 20th August, 1947, Mr. Dalton, the then Chancellor of the Exchequer, announced by broadcast that there would be "a temporary suspension of many of the present arrangements permitting sterling to be exchanged into dollars". A Treasury Order with effect from the 21st August, 1947, promulgated the following Amendments to the then existing Payments Orders:

- "(1) Sterling can no longer be freely transferred from Transferable Accounts (of non-residents of the sterling area) to American Accounts or Canadian accounts, but will remain otherwise transferable as hitherto.
- (2) Sterling on Canadian Accounts may be used in Canada or the sterling area. Canadian Transferable Accounts disappear."

A period of considerable uncertainty followed, during which there were numerous amendments and modifications. From then onwards a long series of new payments agreements has been negotiated, frequently complemented by a trade agreement designed to bring up the trade between the United Kingdom and the countries concerned to the maximum limit possible within the amount of the other country's currency which either party was willing to hold.

As the position stands at present the countries of the world have, from the point of view of the transfer of sterling balances, come to be divided into five groups, the first of these comprising the sterling area, which is officially designated "Scheduled Territories" in the more recent terminology.

This area comprises the British Dominions and Colonies (with the exception of Canada), the British Mandated Territories of Cameroon, Nauru, New Guinea, South-West Africa, Tanganyika, Togoland and Western Samoa,

the British Protectorates and Protected States, and further, Burma, Iceland, the Republic of Ireland and Iraq. The Farøe Islands, which comprised a part of the Scheduled Territories up to November last, have now ceased to be a part of this area and have become assimilated to Denmark under the group of bi-lateral accounts. Within the Scheduled Territories sterling transfers can be made freely from any Resident Account to any other Resident Account, though some limitations are imposed by local controls, as notably in the case of South Africa, Hongkong, India and Australia. Transfers may also be effected from any American, Transferable, Bi-lateral or other Account to any Resident Account of the Scheduled Territories without restriction. Payments from a Resident Account to the account of any of the other four groups require the approval of the Bank of England or its authorised agents, the granting of which is based on the production of evidence in the shape of import licence, insurance documents and the like, to show that the underlying transaction is acceptable to the authorities. In the case of Australia, transfers of sterling funds are permitted, but movement of capital from Australia is subject to local control, and similar arrangements apply in the case of South Africa, the actual deterrent being generally an official indication of the possibility of restrictions on repatriation at some future date.

Secondly come the American Account countries, which comprise Bolivia, Colombia, Costa Rica, Cuba, the Dominican Republic, Ecuador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Salvador and Venezuela as well as the United States of America, the Philippine Islands and any territory under the sovereignty of the U.S.A. As between these countries transfers may be freely effected and sterling payments may be made from any American Account to any Resident Account of the sterling area or to any Transferable or "Other" Account. American Sterling Accounts are also freely convertible into dollars at the current rate of exchange.

Thirdly, there is the group of Transferable Account countries, which comprise the Anglo-Egyptian Sudan, Chile, Czechoslovakia, the Dutch Monetary Area, Egypt, Ethiopia, Finland, Iran, Italy (not including the Vatican City), Norway, Poland, Siam, the Spanish Monetary Area, Sweden and the U.S.S.R. Payments between the various countries within this area are permitted provided always that they are made from an account which has been specifically designated a Transferable Account. This point should, perhaps, be especially emphasised, since transferability does not and was never intended to include without discrimination every account in a country styled a "Transferable Account country", but relates to the approval by the Bank of England of transfers from and to the "transferable" accounts held by banks, but not by traders or individuals. Payments from Transferable Accounts to Resident Accounts, or to the Accounts of "Other Countries", or from American Accounts to accounts of this group are permitted without restriction.

On the other hand, payments from a Transferable Account to an American group Account or to a Bi-lateral Account cannot be made except with the express prior approval of the Bank of England.

Bi-lateral Accounts are those applicable to countries with which, as the title implies, there are in existence payments agreements with the United Kingdom involving a bi-lateral method of settlement. Payments from such accounts are restricted to transfers made to Resident Accounts, or to transfers from one account applicable to an individual member country of the group to another account applicable to the same country. Transfers as between individual members of the group and all other payments to and from accounts belonging to this group are only permitted with the specific authorisation of the Exchange Control in the United Kingdom. This group comprises the following: The Argentine, Austria, the Belgian Monetary Area, Brazil, Bulgaria, Canada, China, Denmark, the French Franc Area, Western Germany, Greece, Hungary, Japan, Israel, Lebanon, Paraguay (to which, however, special arrangements apply), Peru, the Portuguese Monetary Area, Roumania, Somaliland, Switzerland and Liechtenstein, Syria, Tangier, Transjordan, Turkey, Uruguay, the Vatican City and Yugoslavia.

The final group of countries are generally described as "Other Countries" or "Residual Account Countries" and comprise Albania, Arabia, Afghanistan, the ex-Italian Colonies, Liberia, Nepal, Southern Korea. There is no restriction on payments as between countries in this group, and transfers may be made from accounts applying to any of these countries to Resident Accounts. Payment may, moreover, be made to accounts applicable to Residual Account countries from accounts of the American Account group or of the Transferable Account group without restriction.

London.

Independent Applications of National Accounts

By J. SANDEE

1. RECENT publications about national accounts and national income seem still to be based on the opinion that national accounts are mainly a tool for national income theory and evaluation. Among the designers of the national accounts for the Netherlands it is held that these statistics have functions of their own, which are even more important than their relations to national income statistics. This not too serious controversy is apparent for instance in the way in which Mr. R. Tress recently treated the diagrammatic representation of the Netherlands' national accounts, the main ideas behind Derksen's diagram being neglected and the empty rectangles forced to serve national income purposes.¹

It is the aim of this article to describe the principal independent functions of national accounts and to show that also their diagrammatic representation has advantages of its own.

2. English-speaking statisticians are accustomed to the idea that national accounts have been invented for the purpose of illustrating the solutions of a few intricate problems in the theory of national income. This was, for instance, the approach used by Mr. Stone in his Memorandum on "Definition and Measurement of the National Income and Related Totals" attached to the United Nations Report, *Measurement of National Income and the Construction of Social Accounts*.² Although this Memorandum was concerned nearly entirely with "social accounts", setting forth a great number of principles for their construction, its title already shows that it was intended mainly as a help for national income theory. In the National Income Supplement of the *Survey of Current Business*³ also, the national accounts were introduced as a background for the explanation of the definitions employed by the Department of Commerce.

3. This application of the national accounts is indeed a very important one. As the statisticians from the Department of Commerce National Income Unit pointed out, in their rejoinder to Professor Kuznets⁴: "the accounting approach provides a powerful tool for the solution of many intricate problems that arise in the consistent formulation of national income concepts".

Apart from this theoretical application for national income purposes, national accounts are helpful in the actual evaluation of national

¹ R. C. Tress: "The Diagrammatic Representation of National Income Flows," *Economica*, November, 1948, page 276.

² United Nations. II. 1947. 6.

³ U.S. Department of Commerce: *Survey of Current Business*, July, 1947.

⁴ M. Gilbert, G. Jaszi, E. F. Denison, C. F. Schwartz: "Objectives of National Income Measurement: A Reply to Professor Kuznets," *Review of Economics and Statistics*, Vol. 30 (1948), page 151.

income totals, as a means for combining the available statistical data in such a way that most advantage is drawn from each of them. In most cases the auxiliary statistical material is so detailed and partial that it is only possible to use it by setting up separate accounts for a great number of branches of industry. When all of these have more or less successfully been filled in, both sides being made to balance without improbable residuals and each item being registered both as an accrual and a disbursement, the national income resulting from this construction has passed many times, in small portions, through a process of scrutiny and comparison, so that it is far more reliable than the outcome of wholesale estimates from tax records or the like. There is even an improvement in accuracy to be expected when a less ambitious course is followed and the national accounts go no further than the bare minimum, published in the United Kingdom National Income White Paper of April, 1947, or by the Department of Commerce.

4. However, the improved accuracy of national income estimates is insufficient to justify the combination of such amounts of statistical, technological and accounting knowledge as are necessary for the construction of a detailed set of national accounts. Were it not that several other and more important purposes could be served by this category of statistics, the national accounts would never have secured their place in so many statistical offices.

The history of national accounts on the continent shows that there need not even be any relation to national income theory or evaluation for the national accounts to be invented and practically constructed.

In France, André Vincent¹ described a system of national accounts, which has evidently been an inspiration for the French accounts for 1938, published in 1946.² In his essay, Professor Vincent mentions a number of applications of the national accounts he had in mind, the definitional refinement of national income and related totals being one of the less important instances.

In the Netherlands, Ed. van Cleeff pleaded for "a system of national book-keeping" without even mentioning the national income. By-products of Derksen's national income evaluations and parts of the data, assembled for an econometric model for the Netherlands, constructed by Tinbergen, were already nearly sufficient to complete the major accounts. After the liberation, Derksen published these preliminary results³; in his paper the relations between national accounts and national income were still very meagre. Only for 1946 and 1947 have the Netherlands national income estimates been the result of an elaborate system of national accounts, prepared by the Central Bureau of Statistics.

¹ A. L. A. Vincent: "La Conjoncture, Science Nouvelle," Paris, 1943.

² "La comptabilité nationale de la France en 1938," *Etudes et Conjoncture, Union Française*, Vol. 2 (1947), page 75.

³ J. B. D. Derksen, "A System of National Book-keeping. Illustrated by the experience of the Netherlands economy." National Institute of Economic and Social Research, *Occasional Papers X*, Cambridge, 1946.

5. As the first and most important of all purposes to be served by national accounts may be named the *systematic combination* of existing statistical data. Anyone who has ever been confronted by the wealth of data, both financial and physical, such as are to be found in statistical yearbooks, monthly bulletins of statistical agencies, trade statistics, reports of social security agencies, central banks or government departments, and who has tried to grasp the main outlines of the body economic, hidden behind these masses of figures, will have longed for a synopsis, a systematic survey of the essential figures. In all countries, knowledge of a multitude of technical details is necessary even to understand such a simple relation as the one between statistics of production and foreign trade statistics. None of the latter have to our knowledge ever been classified according to the branches of industry which could be assumed as the origin of the commodities exported, at least in such a way as to be comparable with existing production statistics. Though there is room for immense improvements in the primary statistics themselves as to scope, uniformity of breakdowns, nomenclature, definitions, periods covered and the like, it is improbable that it will ever become possible to present a structure of primary statistics which will in itself enable one to study all such apparently simple but at bottom very complicated relations as the one mentioned above. It is necessary first to translate all available statistical knowledge into a system which enables one to calculate, without fear for duplications, omissions and other misunderstandings, the major relations in the economy. This translation is only possible by the construction of a detailed set of national accounts, giving all the main flows of goods, services and financial claims between the various branches of industry, the other sectors of the community and the "rest of the world".

It is this idea of a comprehensive, systematic collection of economic statistics which inspired van Cleeff and which was named by Vincent as the first service to be rendered by national accounts.

Their expectations have turned out to be entirely true. A great number of those questions which one meets so often can now be answered: What does the merchant navy mean to us, in terms of guilders and in foreign exchange? What are the contributions of the overseas territories to the national economy? What part of total income is transferred by taxation? What is the importance of savings via social security agencies as compared to total savings? What proportion of final metal production is used in consumption, capital formation or for exports? How much is the total retail turnover and what proportion has it to total private consumption? What weights should raw materials and final products have in a wholesale price index?

Through the construction of national accounts one becomes acquainted with all sorts of statistical data, from all sorts of sources, with their peculiarities, their basic materials, their scopes, their modes and places of publication. The national accounts thus form a systematic

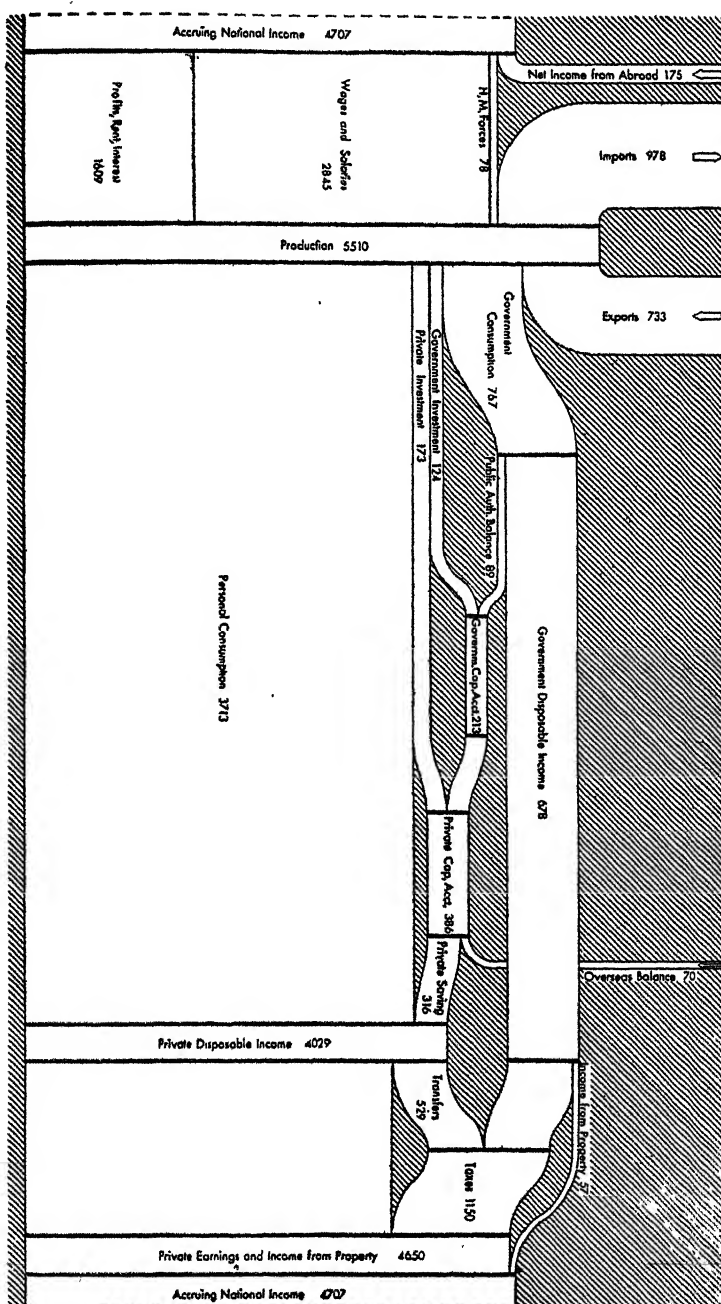
and extensive catalogue of economic statistics. The gaps in the statistical apparatus of a country show up clearly and often it is the task of the national accounts unit to persuade the producers of primary statistics to pay less attention to refinements and more to reconnaissance in unexplored jungles where all maps show white spaces. Each improvement in primary statistics means a simplification in the construction of national accounts, which often have to be based on a multi-coloured patchwork of all odds and ends one can lay hands on. To quote the penetrating words of Professor Vincent: "In practice, you cannot construct them (i.e., the national accounts), even for a very near past, without having the impression created by the reconstruction of an old manuscript, terribly eaten away . . ."

The systematic co-ordination of available statistical data into a uniform set of accounts is a necessary preparation for grasping the quantitative relations between special sectors of the community and the whole. It is equally necessary for comparisons of the economic structure of a given country through time, or of different countries at the same moment. The degree of industrialisation, commercialisation, international integration of a country can only be compared to the situation of other countries after the relations between primary and secondary production, foreign and domestic trade have been cleared up in a uniform and systematic manner.

6. Another category of applications of national accounts is connected with their balancing properties. In the same way as the many algebraic relationships between the various items served to improve the accuracy of the whole construction, so these properties can be used to study the primary repercussions of a change in one or more items. The discussions among the Marshall countries often necessitate the re-modelling, at short notice, of economic plans, after their balance-of-payments assumptions have appeared to be inconsistent with those of other countries. A sufficiently detailed set of national accounts is a convenient basis for similarly constructed sector plans. These plans can be adapted easily to changing assumptions about extraneous data. The balancing properties of the system of accounts promote a harmonic distribution of import reductions, export regroupings and the like. In a controlled economy, less attention needs to be paid to secondary reactions on supply and demand via the price mechanism. In a free economy, the national accounts method has to be supplemented by estimates of these reactions, based on known or assumed elasticities.

7. From these applications of national accounts and budgets for planning purposes it is only a step to the support national accounts can give in the construction of econometric models. The economic quantities in the equations of these models can only be defined unequivocally by relating them to a system of accounts. Such a system also differentiates tautological relations from "economic laws", the parameters of which have to be estimated.

National Income Flows in the United Kingdom in 1938 (£ 1000000)



8. The last group of applications of national accounts to be mentioned here lies in the didactical sphere. The possibilities of national accounts in this direction have as yet not been explored but it should be of great advantage that a connection can be laid between the principles of accountancy for business firms, a subject well known far outside theoretical economics, and macro-economic theory. The economics of inflation, for instance, can be understood far more easily with a detailed set of accounts, relating the banking sector to business, government, final consumers and the rest of the world. The influence of the balance of payments on the volume of money in circulation is elegantly demonstrated by inserting a few fictitious figures in such a system.

9. Turning now to the diagrammatic representation of the national accounts it will be clear that no diagram can fulfil all the functions of the national accounts themselves. In particular the systematic storage of a multitude of data cannot be demanded from a graph without destroying the main *raison d'être* of any graph, that of giving a clear picture of a situation where figures would fail. So far, no mechanical model has been constructed to serve the applications based on the balancing properties of the system of accounts. The main purpose of the diagrammatic representation should be simply to give some measure of insight into the relationships and proportions of the main economic sectors.

This object can be served by some purely graphical means. The relative importance of the "flows" can be indicated by their width, the magnitude of the sectors by the varying area of the rectangles representing them.

In the graphs of Mr. Tress, however, these rectangles represent national income totals and bear names like "Government Disposable Income". For the aim which Mr. Tress set himself, viz., the representation of national income relationships, his method is of course to be preferred. For the more general purpose of giving a synopsis of the national economy in a certain year, the present writer feels more inclined towards a diagram which is less sophisticated and supposes less working acquaintance with Keynesian and allied variables. It is to be regretted that no compromise has been found between a diagram giving full attention to the national income and related totals and a diagram which centres around the economic sectors as independent "transactors". This is, however, less a fault of the two-dimensional graphical art than of the economics and statistics behind the diagrams.

As an experiment an attempt has been made to improve on Mr. Tress' final chart V by varying the width of the flows according to their magnitude; the result, reproduced here, is not wholly unsatisfactory. Even this rapprochement to our methods, however, cannot convince the present writer that for general purposes it has advantages over the original diagram of Derksen—whatever may be its merits for national income theory.

The Hague.

The Economy of Europe

By D. J. MORGAN

THE present *Survey*¹ is the first of a series of studies of the current economic conditions which will be undertaken by the Secretariat of the Economic Commission for Europe. It is the work of the Research and Planning Division of the Secretariat under the direction of Mr. Nicholas Kaldor, who was principally assisted by Messrs. Hal B. Lary and H. Staehle. It must be said without more ado that Mr. Kaldor and his associates have produced a report of which any economist would be proud to claim authorship. It sets a new standard of comparison. It is a mine of relevant information. Its analysis—as one would expect—is careful and illuminating. It is a joy to read. Both the professional economist and others will find it fully satisfying.

I

It is not in any sense to qualify this opinion that we begin by noting two criticisms but rather because at least one of the criticisms has a bearing on the whole report and it is well to say it at the beginning rather than repeat it from time to time in what follows. That criticism is the use, throughout the report, of 1938 as a base year for comparisons. That year was the last full year before the outbreak of war but it cannot be claimed to represent anything in the nature of 'normalcy'. This is not to suggest that the authors of the *Survey* were not aware of the distinction. Indeed, in a footnote on p. 67 they note that "1938, to which many of the statistics given in this survey apply, was a particularly poor year to demonstrate the functioning of the system [of international settlements], in as much as the United States imports fell abruptly by more than 35 per cent. from 1937 to 1938". What the authors thus say of the analysis of the pre-war system of international settlements found in *The Network of World Trade*,² to which they refer, may be said of their own *Survey*.

Let us take one instance of this. On p. 56 the *Survey* states:

"Available data indicate that, on the average for Europe as a whole, price changes have tended to raise the cost of imports and the cost of exports in about the same proportions. In other words, there does not appear to have been any substantial deterioration in Europe's 'terms of trade'—any significant increase in the cost of imports in terms of exports—from 1938 to the post-war period. This generalisation, however, covers some wide disparities in the relative position of different countries.

¹ *A Survey of the Economic Situation and Prospects of Europe*, United Nations, Geneva, 1948, 206 pp., 12s. 6d.

² League of Nations, Geneva, 1942.

These differences may be examined with the aid of the price factors which have been employed in reducing the post-war trade figures from current to 1938 values. From this point, however, it will be more accurate to speak of changes in 'average values' rather than changes in prices. The factors used to deflate values from current to 1938 prices are not price indices in the sense of the average changes in prices of the pre-war array of export and import goods, but are changes in the average values of the goods actually exported and imported in 1946 and in 1947 as compared with their average values."

The distinction made amounts to this: the 'average value' indices take current quantities as weights while 'pure price' indices (as they are termed in a footnote on p. 57) take a predetermined stock of goods. On the one hand, the *Survey* does not provide a comparison of the results of using both methods although it admits (in a footnote) that "Whether such average value indices are the most appropriate measure of what is traditionally called the 'terms of trade' is a question on which opinions may differ." In fact, the differences for the United Kingdom at least are not insignificant. Taking, like the *Survey*, 1938 as 100, the terms of trade for the fourth quarter of 1947 were 88 and 93 if average values and prices are used respectively, both using current weights, while the terms were 90 if average values are taken with base-year weights. On the other hand, much indeed depends on the choice of base year. The International Monetary Fund publishes statistics of unit prices for imports and exports with 1937 as base year.¹ Again taking the case of the United Kingdom it shows that the unit value of exports rose from 100 in 1937 to 102 in 1938 while the unit value of imports fell from 100 to 93. We are consequently bound to feel somewhat sceptical about the value of the whole calculation. This is regrettable in so far as it arises from failure of Mr. Kaldor to take us completely into his confidence by showing us the degree of error likely in the data he has been forced to use, the methods he has thought fit to apply and the base year chosen.

It is, therefore, to be regretted that as part of the statistical spade-work necessary to inaugurate the series of reports pre-war calculations were not made on the basis of averages for, say, 1934-7 rather than, as in the case of the League publications, one year.

The next point also concerns a practice which the *Survey* takes over from the League. It is the convention of grouping together the receipts from shipping and other services with investment income rather than with the receipts from commodity exports. For many purposes this conventional grouping is appropriate but it may be questioned whether it is so in all cases. It is emphasised in the *Survey* that in accounting for Europe's trade deficit due regard must be

¹ *International Financial Statistics* (monthly).

paid to the absolute change in the level of prices as well as to any relative change in import and export prices. This is so because Europe had a deficit before the war and therefore even if there was no change in the relation of import and export prices the gap would increase with any price increase. Thus, to take Europe's trade with non-European countries, the 1938 gap between imports f.o.b. and exports f.o.b. of \$2,090 million would become with an increase of 50 per cent. in both import and export prices a gap of \$3,135 million. The absolute change in prices would not matter if the initial position was one of balance between imports and exports. Yet there does not appear to be any good economic reason for eliminating shipping and other service receipts in this way. Clearly, if the trade gap was covered by service receipts and the price of these has risen *pari passu* with that of commodity prices there is no new burden to face. The same may be said of investment income (except where it arises from fixed-interest-bearing securities). It is arbitrary, therefore, to demonstrate a widening of the trade gap without taking the change in price of services into consideration.

II

THE PROGRESS OF EUROPEAN RECOVERY

The *Survey* may be conveniently discussed in two stages: the progress of European recovery to the third quarter of 1947, and the problem of bringing about a new balance in Europe's trade accounts.¹ The first stage may be discussed in four parts: production, trade, inflation and the balance of payments.

There is nothing unusual in a quick recovery of production after a war. It was a feature commented on by both J. S. Mill and Marshall.² "An enemy lays waste a country by fire and sword, and destroys or carries away nearly all the moveable wealth existing in it: all the inhabitants are ruined, and yet, in a few years after everything is much as it was before. . . . There is nothing at all wonderful in the matter."³ The *Survey* provides index numbers of manufacturing output after the 1914-18 war and of industrial production after the late war. Both show sharp recovery. For twelve countries manufacturing output was in 1920 three-quarters of the 1913 level and, if Germany is excluded, 82 per cent. It suffered a decline in 1921 and did not rise significantly above the 1920 peak until 1924. By the fourth quarter of 1946 industrial production for fifteen countries was 83 per cent. of the 1938 level and 98 per cent. without the three western zones of Germany. It is true that the indices are not strictly comparable owing to the different composition of countries and the exclusion

¹ It is proposed to ignore the useful summary of economic plans of European countries contained in Appendix A of the *Survey*.

² Mill, *Principles of Political Economy*, Book I, Chapter V, section 7 (Ashley edition, pp. 74-75) and Marshall, *Principles of Economics*, Appendix D, section 5 (eighth edition, p. 780).

³ Mill, p. 75.

of mining and building from the earlier period.¹ It is not possible to estimate the differences due to these factors.² But when it is remembered that 1920 was further from the end of the first war than was 1946 from the second it might be agreed that the rate of industrial recovery was greater this time than before. This rate was not maintained in 1947: industrial production was in the third quarter of 1947 little more than at the end of 1946, this being largely associated with the decline of United Kingdom production.

For all countries other than the United Kingdom index numbers have been taken from official or semi-official sources. For the United Kingdom an index was constructed by combining the Board of Trade index numbers for output in various industries on the weights provided by their respective net outputs in 1935. Since this calculation was made a new index of industrial production of the United Kingdom has been published by the London and Cambridge Economic Service.³ The latter uses more series than that of the *Survey* and uses 1946 weights. The small discrepancies between them are mainly due to the difference in weights. When each index number, re-grouped to ensure similar coverage, is calculated on the 1946 weights it is found that for the fourth quarter of 1946 the *Survey* and L.C.E.S. give 112 and 110 respectively; for the third quarter of 1947 they are 109 and 108 respectively.

The experience of Europe's coal and steel producers provides interesting comparisons between 1920 and 1946. While the total production of hard coal in Europe was 18 per cent. below the 1913 level in 1920 and 28 per cent. below in 1921 the position was almost exactly reversed in 1946 and 1947, being 28 per cent. below in 1946 and 19 per cent. below in 1947. Without Germany the revival after 1945 compares much better, of course, with the 1920-1 position. Similar results are obtained by comparing the output of steel ingots and castings: in 1920 and 1921 production was 23 and 44 per cent. respectively below the 1913 volume while in 1946 and 1947 output was respectively 40 and 30 per cent. below the 1938 figure. Without Germany, production in 1947 exceeded the pre-war level by 7 per cent.

By adding the value of imports to the output of all industries producing commodities, subtracting the value of exports and dividing the result by the population the *Survey* provides a comparison of commodities available for home use per head of the population in 1938 and in the year July 1946—June 1947 in terms of United States dollars of 1938 purchasing power. For fourteen countries this averaged \$135 per head in 1946-7 and \$161 per head in 1938; omitting the three western zones of Germany the figures were \$149 and \$154

¹ Mining is included in the index for Norway in the earlier period.

² The inclusion of building tends to damp the index as, even at its seasonal peak in the third quarter of 1947, activity in building and construction was below the 1938 level.

³ Volume XXVI, Bulletin I, February 18th, 1948.

respectively. This does not, of course, provide an estimate of gross national product per head because of the omission of services and the inclusion of foreign borrowing.

III

It is difficult to make accurate generalisations respecting the trade of Europe in 1946-7 owing to the wide diversity of experience of various countries.¹ After eliminating price changes it is clear that European imports have shown a sharper recovery than European exports and at the same time trade between European countries has shown much less improvement than trade with others. The main reason for the lag in intra-European trade is undoubtedly the enormous contraction in the trade of Germany, amounting to approximately \$1,000 million in both German exports to the rest of Europe and in German imports from the rest of Europe. But there have also been two other important causes. One is the reduction of trade with other European countries of Central and Eastern Europe and the other is the fall in United Kingdom imports from the rest of Europe.

The import and export volume indices for fifteen countries bring out clearly the enormity of the German collapse: over 1946 German imports averaged 18 per cent. of the 1938 volume and exports a mere 7 per cent. The United Kingdom was distinguished by being the only country for which the export index in 1947 stood higher than the import index. For the rest of Europe (excluding Germany) the volume indices for the first nine months of 1947 show imports at 7 per cent. greater than the 1938 volume and exports 32 per cent. less. This contrast suggests the relevance of a consideration of price movements.

IV

The *Survey* is perhaps at its best in describing and analysing the problem of inflation both in its open and in its suppressed forms. Here it is sufficient to note the impact on external trade. An adequate measure of overvaluation of the currency is hard to come by but a rough idea may be obtained by examining the movement of wholesale prices and of the prices of exported goods relatively to the corresponding prices of the United States. When these comparisons are made it is clear that with few exceptions, of which the United Kingdom is the most important, prices in European countries (after taking exchange changes into account) have risen faster than those of the United States. This has meant on the one hand a lower volume of exports and on the other some offset to the price of imported

¹ The authors of the *Survey* must be congratulated for shewing with neatness and clarity the distribution of Europe's trade by major country groups through the use of a trade matrix (pp. 40-41).

foodstuffs and raw materials. As far as the evidence goes there is no support here for the argument that the United Kingdom would have offset the deterioration in the terms of trade by raising export prices and not suffered a serious setback in the volume of her exports.

V

However, Europe's trade balance with non-European countries showed the same deficit (\$12 thousand million at current prices) in 1946 and 1947 as for the years 1919 and 1920. The balance on current account was \$5.3 thousand million worse in 1946 and 1947 than in the previous period because of the drop in net income from investments by one half (\$1.8 thousand million to \$0.9 thousand million) and the change of the net credit of \$2.2 thousand million from other current transactions into a net debit of the same magnitude. This comparison brings out the essential differences of the effects of the two wars on Europe's external position: the loss of shipping income, which to some extent will be temporary, and the loss of foreign investment income, which in large measure will be lasting.

The current account deficit in 1947 was \$7.5 thousand million. Four factors were responsible for this: first, a net change in the trade balance due to a change in the volume of external trade compared with 1938 (\$1.2 thousand million); second, a change in the trade balance due to price changes (\$3.6 thousand million); third, a drop in net income from investments (\$1.0 thousand million); and fourth, a fall in other current receipts (\$1.7 thousand million).

VI

STRIKING A NEW BALANCE

This is the essential picture of Europe's position. In the first eighteen months of peace industrial recovery was rapid and for the next nine months very slow; trade, particularly intra-European trade, showed a similar movement. The question remains: what improvement in production and intra-European trade and what change in Europe's accounts with non-European countries may be expected? The *Survey* considers each of these in some detail. It is sufficient here to note the main upshot of its examination. It is well to remember at the outset that three major changes in the pattern of international trade have been brought about by the war. There is the drop in investment receipts which hits the United Kingdom with special severity and will prevent a revival of the United Kingdom's import surplus from the rest of Europe. There is the separate problem of truncated Germany, which formerly enjoyed a favourable balance with the rest of Europe. There is, finally, the breakdown in the triangular settlement with the United States.

It is considered that the likely receipts from invisibles (not much more than \$500 million net per annum) will be required to cover amortisation payments on loans received during the reconstruction period together with releases from sterling balances. The burden of adjustment is therefore placed wholly on commodity trade. On the assumptions that food imports will not be required in excess of the pre-war level and that European production will prove capable of dispensing with relief and reconstruction imports of manufactured goods it is concluded that in order to maintain the pre-war standard of living in Europe and at the same time restore equilibrium in the balance of payments additional production of the order of \$2,000 million per annum will be required. "In relation to the 1938 volume of overseas trade, the gap to be filled is in the order of \$2,000 million and would require a 56 per cent. increase in Europe's exports or a 36 per cent. contraction in its imports. In relation to the 1947 levels of trade (expressed in 1938 prices) the gap is about \$3,300 million and would involve a 114 per cent. increase in exports or a 53 per cent. contraction in imports" (p. 66).

It is recognised that the assumptions made are questionable and that the attainment of equilibrium will require structural changes in the economy of Europe which will extend over a number of years. But accepting all this, what may be expected? As regards the possibilities of export expansion the *Survey* declares the achievement of a considerable export surplus with non-European countries other than the United States unlikely owing to the deterioration of their own dollar position. Exports must in the main rely directly on the dollar markets which are thought to be unlikely to absorb in any considerable volume the products of Europe's heavy industries. Turning to the possibilities of import contraction it is concluded that, with the revival of domestic production, both industrial and agricultural, relief and reconstruction imports, mainly from the United States, may be expected to decline. But the fact that much of Europe's overseas purchases cannot be domestically produced and cannot, if pre-war consumption standards are to be maintained, be sharply cut limits severely progress on this front. Furthermore, with the expansion of Europe's heavy industries which can provide substitutes for goods hitherto imported there will be some consequential increase in imports of petroleum and other industrial materials.

The extent to which home production should replace imports rather than expand exports depends in large measure on the extent to which European countries are able to break away from the bilateral balancing of payments. The *Survey* is perhaps weakest in its treatment of the revival of intra-European trade. This is not to ignore its clear account of the genesis of the system of payments agreements. Nor is it to deny that the essential truths are there. But they are not given the emphasis they undoubtedly deserve. On the one hand, the benefits of bilateralism have been to an appreciable extent illusory, for they

have maintained or increased the volume of trade without in many cases either meeting the most urgent needs or providing the most productive use of resources. It is true that "the capital invested in vineyards or the skills developed in fine glass-work could not be readily transferred to other lines of production" but this consideration surely has a fractional importance. On the other hand, the danger exists that if adequate measures are not taken to work out a more appropriate economic structure the present external unbalance will prove increasingly difficult to cope with. Through the insulation of the various economies bilateral agreements impede this adjustment except where they are limited to the products of "vineyards and the skills developed in fine glass-work".

The London School of Economics.

Book Reviews

The Problem of Budgetary Reform. By J. R. Hicks. Oxford University Press. 1948. 95 pp. 5s. net.

Criticism of the way in which the Government accounts are kept and recommendations for improvements were given a sharp spur when Sir Stafford Cripps himself joined the critics in his Budget speech last year. Since then, a number of comments have appeared, but Dr. Hicks's essay is the first sustained attack upon the subject. Needless to say, it is an immensely valuable piece of work: within its compact space, almost every paragraph contains some wise observation or stimulating thought. In his first 20 pages, Dr. Hicks states the problem as he sees it and sets forth his "practical proposal" for a solution. In the remaining 70 pages he deals with a whole series of points to which his proposal gives rise—points significant for the accounts themselves, for Treasury control, for national income accounting and for what we may call (to embrace employment policy and anti-inflation in a single phrase) control of the national economy.

The Government's accounts have to serve three purposes:—

- (a) securing *financial integrity* and obedience to Parliament;
- (b) achieving *efficiency* in governmental spending and provision of services; and
- (c) setting *budgetary policy* within a national economic context.

With the expansion of state services and growth of trading activity, administration is no longer the primary element in government expenditure and the present method of keeping public accounts, though eminently suitable for the first of the three purposes listed above, no longer adequately provides for the other two. First, expenditure accounts are drawn up department by department and "subjectively", instead of being classified by the purposes, or "objects", of expenditure, thereby making it exceedingly difficult to follow Government activities involving more than one item of account. Secondly, all carry-over of assets and liabilities from one accounting year to the next is ignored, with the consequence that, in times when money balances and stocks of goods held by departments are greatly changing (and especially after a world war), the Exchequer surplus or deficit is a poor reflection of the impact of public finance upon the national economy. This was so after 1918, when the accounts of the Service departments gave trouble;¹ but it is even more the case to-day when, in addition, civil trading has greatly expanded.

It is on this second aspect, concerning the Budget, that recent discussion has mostly centred, and Dr. Hicks's essay, as indicated by its title, is concentrated upon this part of the problem. Dr. Hicks's concern is with the totals of government revenue and expenditure, and with their details only as they affect those totals and the

¹ Select Committee on National Expenditure, *Seventh Report, 1918.*

balance between them. The principle involved is the same for both, however, and from Dr. Hicks's essay a characteristically clear and precise formulation can be drawn. The core of it may be stated thus. The administrative functions of Government (for which the Exchequer rightly acts as a paymaster) must be sharply distinguished from the trading functions (for which the Exchequer should be regarded as acting as a bank). For the first, the traditional cash system of accounting may be retained, but the second should be shifted on to the same basis as would be the case if they were commercial accounts.

This principle would be generally endorsed among economists. It would provide the framework for the rationalisation of the details of Governmental accounting and, in respect of the aggregates involved, it would yield a true representation of the Budget surplus (or deficit), comprising (to take advantage of Dr. Hicks's neat exposition) the surplus of revenue over administrative expenditure *plus* the interest received by the "banking section" of the Exchequer on loans to trading units, etc., *plus* the trading units' own profits, computed from their profit and loss account drawn up on normal commercial lines. The principle requires, of course, the drawing of a line between administrative and trading functions, but in this regard also, we may draw upon Dr. Hicks for a precise recommendation:—

"The first object of commercial accounting is to watch over the capital of the business; the fact that the administrative department has no capital (or hardly any) makes commercial accounting distinctly ill-suited to its problems. The trading department, on the other hand, has, in some form or other, a capital entrusted to it; that is the reason why it is obliged to make use of commercial accounting, if it is to order its transactions satisfactorily" (p. 15).

Now "capital" in this context must surely mean "capital" *in an economically significant sense*. We must separate off, for each department, those of its activities or functions which involve the holding of capital, and record these in separate trading accounts—profit and loss account, "resting account", etc.¹—leaving the remainder as before. We should then, having our data on a cost basis, be on our way to testing the efficiency of Government enterprise, while, as far as the Budget is concerned, we should have the Exchequer accounts and Budget forecasts on the same basis as in the National Income White Paper, and hence be able to set them in the national income context without tiresome computations and crude guesswork.²

Had Dr. Hicks confined his essay to "an economist's view", I do not doubt that these would have been the conclusions which he would have come to. But he does not. Instead, he leaves the definition

¹ Cf. F. Sewell Bray and Richard Stone, "The Presentation of the Central Government Accounts," *Accounting Research*, November, 1948.

² Cf. my attempt to do this for the 1948/49 Budget, *London and Cambridge Economic Service Bulletin*, May, 1948.

of "capital" for this purpose open, content not only to treat each Government department as it stands as wholly administrative or wholly trading, but, if need be, to leave most of them (including all the doubtful cases) in the administrative category.¹ In place of the functional distinction suggested above there is substituted one of administrative convenience, and so, what began as a principle becomes in the end only "the radical solution" having "first preference", and any amount of less radical compromise is held permissible.

This step is, for two reasons, greatly to be regretted. The plain analytical conclusions of the economist, which could be so valuable in reaching a final result, are thereby obscured. Secondly, the compromise with administrative considerations put forward by Dr. Hicks is not a good one, and could be a dangerous one.

Now the fact that a compromise may be necessary is not to be denied. As noted at the beginning of this review, there are three purposes which the Government accounts must serve and anxiety for the second and third, in which the economist is most interested, must not blind us to the fundamental importance of the first. Dr. Hicks nowhere states at all clearly why the Treasury should be so persistent in retaining cash accounting, but the case was argued vigorously by Sir Eric Bamford before the Select Committee on Estimates in 1947,² and the crux of it may be summarised in his words :

"To go on to an income and expenditure basis for the ordinary estimates is to abandon facts for opinion; to abandon things which can be immediately ascertained and immediately presented to Parliament."

The accounting profession has circumscribed the area of judgment involved in commercial accounts by establishing conventions, but judgment is still required and, in the case of the public accounts, its exercise would be matter for debate and possibly for serious dispute. Moreover, the business of drawing up "commercial accounts" takes time.

But there are two ways of effecting a compromise. One way is for each of the "interests" to make concessions in order to arrive at a single formula; the other is that they should agree to differ. Dr. Hicks has chosen the first way which, in my view, is the wrong one. In particular, it bears the implication that however much, for the sake of administrative efficiency, the term "capital" may be drained of its economic content in order to provide an acceptable distinction between "administrative" and "trading" departments, that same definition must nevertheless be applied to *all* Government accounts—not only to the Appropriation Accounts and Estimates but to the National Income accounts and Budget forecasts as well. "I feel very strongly," says Dr. Hicks,

¹ Dr. Hicks's use of the word "department" is a little obscure. He refers throughout to a Roads Department which, in the customary sense, does not exist. But I think I have interpreted his intentions correctly.

² Select Committee on Estimates, *Fourth Report, 1946/47*.

"that the main tables of the National Income White Paper ought to run in terms which harmonise with those in which the budget can be presented; and if this means that they cannot include in their 'Investment' figure the whole of what one would like to reckon as public investment, then the defect must be accepted" (p. 58).

It is true that, in the end, Dr. Hicks appears to take this all back with proposals for a whole set of subsidiary tables. But the damage has been done.

Why this insistence upon conformity? No clear reason is given by Dr. Hicks himself, but two partial explanations may perhaps be suggested—though neither of them justifies it. In the first place, there is discernible throughout Dr. Hicks's essay a liking for uniformity for its own sake. His determination to include the nationalised industries within the *central Government* accounts, instead of as one sub-head, along with insurance funds and local authorities, in the *public* accounts, provides one example; and his insistence that all figures should relate to the same period, actuals as well as forecasts, regardless of the distinction between the two and of the three-months lag in the collection of past data, provides another. Secondly, Dr. Hicks appears to disregard the difference in degree of accuracy required of the various sets of figures. Complete accord between the national income estimates and the Exchequer accounts is far from necessary. What is essential is knowledge of the changes in departmental balances and stock holdings, and the ability to pick out the *large* capital receipts and expenditures. These are required from *all* accounts. It is the keeping of the Government accounts which requires compromise, not the forms in which the outcome is presented.

The Treasury's reluctance to change the Government's basic accounting system is strong and firmly based. Nevertheless, the putting on to a trading basis of all accounts for the commercial and manufacturing activities of departments and the provision of supplementary "objective" classifications of the Estimates, wherever called for, have both been promised,¹ and it is obviously not outside the scope of the National Income statisticians, if permitted, to do for the Budget forecasts what is already done in reformulating past Government revenue and expenditure (though doubtlessly the quality of the estimates could be improved with more help from the basic accounts). The next stage to be reached is the official recognition of the *equal importance* of each of these forms of account-keeping within its own sphere, and hence an equal concern for the accuracy needed. To force them instead, now or at any other time, all into an identical but inaccurate mould would be, not advance, but retrogression, and it would be unfortunate if Dr. Hicks's most valuable book had this of all results.

R. C. TRESS.

¹ Select Committee on Estimates, *Fourth Report, 1946/47*, pp. 20 and 26. Cf. the Appendix to Estimates, Class V, 1, on housing.

Individualism and Economic Order. By F. A. HAYEK. Routledge and Kegan Paul. 1949. 272 pp. 12s. 6d.

It would be tempting to recall the times in which these essays were written and remember the popular temper which they confronted. For otherwise, our follies forgotten, the stigma which we attached to the man who had fought them may easily outlive their memory. But I suppose Professor Hayek is today rather proud of this stigma—which indeed does him honour—and would not wish to be cleared of it. Besides, if I recalled the memorable campaign through which he defended for a time some indispensable truths against the turbulent hopes of contemporary opinion, I should also have to criticise to a certain extent the position he took up in this struggle. He addressed an age obsessed by the fear of mass unemployment while turning an indifferent eye on this problem. This surely was a mistake. The historic analysis of these essays might thus lead me away into a discussion of the author instead of the book, which would be out of place.

Instead of looking back, let me therefore try to discern the prospect towards which these essays converge. Professor Hayek says that they represent different aspects of the same central issue and I feel this claim to be justified, though I do not find it easy to substantiate it. We may take it, however, that he is seeking throughout to reveal the deeper reasons for a system of private enterprise, both on the political and the economic side.

The first essay, "Individualism True and False," is a straight encounter with the political aspect. It is highly instructive. The recall to the colours of Lord Acton and de Tocqueville, to fight the battles of the twentieth century, will no doubt be most invigorating to the cause of freedom. It is good to hear these great voices again, and that of Edmund Burke too. But is it certain that our disorders can be clearly defined in the words of an age so remote in its unsophisticated integrity? The attempt may entangle us in contradictions. Thus it is urged that an individualist order "must rest on the enforcement of abstract principles", but a couple of lines before Lord Acton is quoted warning us that when the support of any speculative idea is made the supreme end of the State, it becomes for the time inevitably absolute. How do we distinguish between abstract principles on which we should base the order of society and speculative ideas, the fascination of which we must firmly resist?

Acton and Burke tell us that tradition is the only true bulwark of liberty, and we are glad to hear it repeated. Yet the question remains how we should interpret this teaching today. Europe is full of great traditions and Hayek rejects some that are most influential today. He repudiates Descartes and his 'geometrical spirit', and with these, if I understand him rightly, Rousseau and Romanticism; he ignores Catholicism. All this may be fully justified, but it leaves widely open the meaning of modern traditionalism. "The individual (says Hayek)

in participating in the social process, must be ready and willing to adjust himself to changes and to submit to conventions which are not the result of intelligent design, whose justification in the particular instance may not be recognisable, and which often may appear unintelligible and irrational." I think I understand the truth of his sentence, but suspect that this is only so because I agree with Hayek to begin with; he gives little guidance for its interpretation to those starting from different premisses. I am afraid the latter may be more shocked than enlightened by such statements.

This is no criticism, but merely an attempt to define the scope of Hayek's thought; his essays are intended as a preparation for a series of philosophic inquiries, and do not engage on the definitive analysis of any. Thus, feeling the inadequacy of a positivist conception of society, Hayek makes a stimulating excursion towards the re-definition of 'facts' in social science. Social entities, he says, are not spatiotemporally defined, but derived from constructions, and the proper process of constructing them is necessarily anthropomorphic. In another essay he criticises the assumption that the administration of an economic system could start off from the 'data' of economic equilibrium. For these, he explains, do not exist except as a result of a certain mode of economic administration (namely that operating through the market) as represented by an idealised mathematical model. A similar problem is ingeniously pursued in an essay on "The Meaning of Competition", where it is shown that the assumption of 'perfect competition' excludes the occasion for any concrete competitive activity. An enquiry into the 'division of knowledge' in society gives rise to a discrimination between explicitly formulated and unconsciously practised knowledge.

Lucid, searching and erudite, these essays lead us on faithfully through a wide region that intensely concerns us. It shows both their merit and their limitation that we are left in the end deeply pondering which way to turn next.

MICHAEL POLANYI.

Trade Union Wage Policy. By ARTHUR M. ROSS. A Publication of the Institute of Industrial Relations. University of California Press. 1948. viii+133 pp. \$3.00.

The analysis of the wage policy of Trade Unions by theoretical economists has, in the main, proceeded on the assumption that they are out to maximise a certain something (usually measurable in terms of money). Given a similar motive of entrepreneurial action, the wage policy of Trade Unions was then, to a large extent (there were always qualifying footnotes) determined by the condition of achieving the maximum something (e.g. total wage bill or average wages), subject to the entrepreneurial endeavour to maximise something else (e.g., profits). While the policy of Unions was, therefore, regarded

as perfectly determinate the actual outcome was not, simply because the constraints subject to which the Unions had to maximise could not be known *a priori* (and similarly for the entrepreneurs). There remained thus a good deal of scope for bluffing and other activities associated with the "higgling" of the market.¹

Now the assumption of "maximum behaviour" has been used in a great deal of economic analysis, it always being realised that this involves a considerable degree of simplification. To decide whether or not the simplification is justified, i.e., whether it is useful, it is necessary to examine the motives and actions which it leaves out of account and to assess their importance. Any and every simplification is justified as long as it remains on the road which leads to the real world. It is just that examination of "left-out" factors in the analysis of Trade Union behaviour based on the "maximum principle" which is the subject matter of much of the book here reviewed.

Already at the end of the second chapter the author comes to the conclusion that "to conceive of the Union as a seller of labour attempting to maximise some measurable object is highly misleading" (p. 43). This view is based on the fact that (a) the interests of Union leaders need not coincide with that of the rank and file; (b) that there is no uniquely defined interest of the rank and file; (c) that the membership is heterogeneous and (d) that the main function of Union leadership is to reconcile a large number of opposing interests and not to act on one single "principle". That these facts are of great importance can hardly be questioned.

But even more important is the view put forward by the author that the "Union is not automatically or continuously concerned with the quantity of labour sold and . . . that the typical wage bargain (with certain significant exceptions) is necessarily made without consideration of its employment effect" (14). This view, if correct, would mean that Unions are never maximising anything economists have ever imagined them to maximise. The maximisation assumption would then be almost entirely useless.

Now, while Mr. Ross has exhaustively discussed the great complexity and importance of non-economic motives and thus by implication stressed the relative unimportance of the strictly "economic" factors, he nowhere *directly* justifies the above-quoted view. In his chapter dealing with the problem of a "responsible wage policy" the author shows in great detail why "the volume of employment associated with a given wage-rate is unpredictable before the fact and the effect of a given rate upon unemployment is undecipherable after the fact"

¹ It should be noted that some authors have gone even further and produced a "determinate" solution of the bilateral monopoly problem. The determinateness, however, is only apparent, for this type of solution involves the assumption of perfect knowledge on the part of the participants, of the opponents' tactics. This assumption not only assumes away the problem, but it is also inadmissible, for the assumption would lead to an infinite regress of predictions, viz., the famous example of Sherlock Holmes and Professor Moriarty with each having perfect knowledge as to the other's future course of action.

(80). Mr. Ross then implies that it is this unpredictability and uninterpretability which causes the Unions to ignore the employment effect. This, however, is insufficient 'proof'. Unpredictability is only relative and never prevents people from hazarding a guess. One would have thought that, for instance, in times of unemployment or falling employment the "employment effect" plays a considerable part in wage reductions (or preventing them, if the "employed" members are dominant). It is distinctly a pity that Mr. Ross did not probe a little more deeply into this important question. For if Unions must "necessarily" ignore the employment effect, the maximisation analysis ceases to be a simplification and becomes entirely fictitious. If, however, Unions are not thus precluded and do consider at least to some extent the employment effect, the status of the conventional analysis as a highly simplified model is salvaged.

Not that that is much consolation. Mr. Ross's work can leave no doubt in the mind of the reader that the factors left out of account or unexplained by the maximisation procedure are of almost overwhelming importance compared with the almost trivial result of the model. Thus for instance the author's penetrating analysis of the cause of wage differences shows that it is difficult to explain them by any maximisation criterion. Thus on almost any maximum criterion, discrimination in the rate of wages would be likely to increase the quantity to be maximised (e.g., the total wage bill or average wages), yet Unions frequently insist on a standard rate. Again, a great part of the Unions' wage policy is directed at maintaining a "fair and equitable" wage structure—clearly this endeavour, which, as Mr. Ross's discussion leaves us in no doubt, is of paramount importance, may easily and often does conflict with any maximisation criterion. If we add to this the great number of diverse political pressures, Union rivalry, desire to maintain their position on the part of Union leaders, employers' manoeuvres, public opinion and the fact that the rate of change in wage rates may be fully as important as the actual wage rate, there is very little left for the economic model.

In addition to the topics already mentioned the author discusses what he understands by a "responsible" wage policy and the effect of Unions upon earnings. Unfortunately, the author's discussions of the implications of a "responsible" wage policy are not as thorough as that of the other problems he sets himself. Thus although he maintains that "what is needed is a wage-bargain of sufficient magnitude to reflect the true significance of wages and salaries in the national income and to permit the large questions of economic policy to be considered", he nowhere analyses the difficulties of this procedure or the problems that would remain. Knowledge of the economic consequences of their own actions on the part of Trade Unions and employers may well lead to greater chaos than ignorance, e.g., when such knowledge is used for political purposes. Moreover, the problem of relative wage rates and wage movements would still

remain, and "responsibility" may be interpreted differently by the parties concerned.

One would also imagine that under a system of National-wage bargaining the main point at issue would *not* be what money wage to fix, since the consequent rise in price can, by assumption, be foreseen, but whether prices should rise by as much as employers would like to raise them, i.e., the main point at issue will be the "right" distribution of income between wage earners and capitalists. Since the concept of a "fair" wage could not be called precise by any stretch of the imagination, the conflict of interests, by being crystallised, might be greater than ever. But Mr. Ross regards the attainment of "industrial peace" as one of the main aims of responsible policy. The above criticism suggests that there may be some doubt as to the efficacy of his recommendations in furthering that aim.

In his analysis of the effect of unionism on earnings, the author, after an interesting and careful statistical analysis, comes to the conclusion that "real hourly earnings in highly organised (i.e., unionised) industries are not only higher but also have risen more strongly than in less organised industries" (p. 114). The period analysed is that of 1933-1945. The analysis here is well documented and the results are very convincing.

In conclusion I should like to offer a general criticism of an otherwise very stimulating and interesting book. In a quasi-empirical analysis, of the type undertaken in this work, it is very important to convince the reader that the author is not generalising from the particular. Thus it would have been of great interest to know how many Union leaders Mr. Ross had interviewed, how many wage bargains were analysed and what degree of uniformity had been discovered. In the absence of such documentation one is free to argue that, while Mr. Ross's chapters may be an adequate description of the manner in which some wage bargains have been determined in the past, they were not necessarily the most common types of bargains.

F. H. HAHN.

Why We Read History. By K. B. SMELLIE. Life and Leisure No. 3. 1948. Paul Elek Ltd. 103 pp. 5s.

This is a lively little book, well suited to its purpose of introducing the reader of history to the complexities of the subject which he is reading. Mr. Smellie's method is to begin with a general account of the reasons why history is written and studied; after a short sketch of the development of historical writing, he comes back again to the question, "what is the meaning of history?" Finally he suggests ways of entry into a number of departments of historical study.

The merits of the book are that it is interesting—more interesting than a good many books of larger size on the same subject—and that

it gets down at once to the difficulties which trouble the philosopher even if the historian himself is only half aware of them. (It would be a useful exercise for many "researchers" to try to define what they mean by "an event in time".) On the other hand Mr. Smellie is not a vendor of patent historical medicines for the body politic; he contents himself with a diagnosis in the form of sharp and valuable comments, especially on the history of the last hundred and fifty years. Thus he sums up the so-called "Industrial Revolution" very well by describing it as "in essence the embodiment in material things of the subtlest thoughts of men—it is mathematical thought (once the symbol of philosophical detachment) incarnate". Or again he explains clearly and well why it is that, although other ages have been regarded by contemporaries as unique, "we stand where no other civilisation has stood before", or, as Whitehead has put it: "In the past the time-span of important change was considerably larger than that of a single human life . . . To-day this time-span is considerably shorter".

Mr. Smellie is less cautious in his judgments when he is dealing with the history of Christianity or of the Middle Ages. Thus he quotes, a little vaguely, "the professor of History at Harvard" on the insufficiency of our evidence for the early history of the Christian Church and then concludes that many generations of Christians have believed in the deity of Jesus "in spite of the testimony of the earliest Gospels and the genuine Epistles". Is the matter as simple as all that? And is it safe to assume that all ecclesiastical historians are "partial", or that Gibbon and Hume were not only more gifted but less biassed because their "central theme is that the cessation of the fear of the Lord is the beginning of wisdom"?

Mr. Smellie quotes Lord Acton to the effect that medieval men between 500 and 1500 A.D. were ignorant of history. This judgment needs a good deal of qualification since Mr. Smellie himself, a few pages later, says that during this same period a "philosophy of history, which was also a philosophy of politics"—in other words, the philosophy of St. Augustine—dominated western European thought. In any case it is surely wrong to lump together all medieval historians as anticipating in their "dim and dusty way the great lie-industries" of modern politics. Was Bede "ignorant of any principles of historical criticism?" Was Joinville a "dusty writer"? Are the historians of the Crusades "dim"? Or did King Alfred "anticipate" Goebbels?

The trouble here is that Mr. Smellie has swallowed Acton uncritically. Acton had his weak side. His German masters did not teach him humility or even warn him of the danger of generalising outside his own field. In denouncing the bias of other people Acton himself often wrote like an angry pamphleteer. Moreover, he knew less than he thought about the earlier Middle Ages, or even about English historical scholarship before his own time. Mr. Smellie might perhaps have improved a good book if he had paid less attention to Acton, Collingwood and the dealers in civilisations *en gros*, and if he had given more

consideration to historians of less universal pretensions. It is curious that his illustrations include—after 1800—very few French historians, and that his index does not contain the names of Macaulay, Froude, Freeman, Stubbs, Gardiner or Firth. In the text Maitland has only a casual mention. Clarendon does not appear at all, and, although Bacon is referred to four times, nothing is said of his superb sketch of Henry VII. Surely an English reader might be invited to begin his introduction to history with a study of English historians; Firth on Macaulay is perhaps the best introduction for any one who wants to make a critical study of historical writing. Finally I should be inclined to start a book on the reading of history at the very point where Mr. Smellie ends his last chapter; I should lead off with the inch-to-the-mile ordnance map (and the air photographs of early fields). There is, however, more than one way into historical studies, and readers who follow Mr. Smellie's spirited advice will profit by it even to the extent of disagreeing with some of his generalisations.

E. L. WOODWARD.

The Monetary Problem of France. By PIERRE DIETERLEN and CHARLES RIST. King's Crown Press. New York. 1948. xvii + 98 pp. 14s.

In many ways, this is a disappointing book. It is the second in a series being published for the Carnegie Endowment for International Peace, the first of which was Professor Dupriez's account of the Belgium Reform of 1944. This represented quite a good start and the present volume is something of a let-down. First, it is not a well-written book, though much of this may have been due to careless translation. Second, it does not add very much to our understanding of the problem. It is, indeed, rather a pedestrian piece of reporting, which at times presents a very confused picture (e.g., of the Monnet Plan at p. 68). Third, it is negative in outlook and, in this, certainly reflects the present state of France.

Except for a brief supplementary chapter, the volume is concerned with the situation as it had developed prior to the commencement of Marshall Aid, though it does accept as a datum the key position which France must occupy in any programme for European recovery. The authors begin with a description of the development of the French monetary situation up to 1944 and analyse the factors responsible for the position as it existed at the time of liberation. Next, there follows an analysis of the financial and economic difficulties which faced the country on liberation. There is no doubting the debilitating effects of disorganised transport, the war-time destruction and running down of capital, and of the decrease in production, but other countries were badly hit too. The effects of a "liberation psychosis" and its attendant political instability are also studied. Indeed, all the symptoms of the country's general malaise are catalogued in this rapid review,

including the folly of post-liberation military expenditures greater than the country could afford, the doubtful wisdom of the over-ambitious Monnet Plan, and the difficulty of inducing the peasant either to disband or to pay taxes (all due respect is paid to "the key position that rural opinion plays on the French political chessboard").

One factor which has not received due recognition in other treatments of the problem concerns the peculiarities of the French banking system, which "unlike those of other countries . . . gives to the bank of issue only sporadic and inadequate control over the monetary market" (p. 16). The large credit houses are accustomed to rediscount their holdings with the Bank of France only in very exceptional circumstances and, in any case, the great amount of liquid assets and the policy of cheap money have deprived the Bank of the only weapon it could have used—an increase in the discount rate. "As for credit control by means of an open-market policy, the Bank can only theoretically make use of it. In fact, the non-specialisation of the financial establishments which play a part on the monetary market, and the direct unlimited subscription of Treasury bonds at a pre-determined rate . . . make it technically difficult to exert any efficient control whatever". It is true that the National Credit Council has attempted to restrict the granting of credits for consumption and the purchase of speculative stock, but one gathers that this has not been wholly effective. Nor has the nationalisation of the Bank of France and of four large credit houses made much difference. "In fact, up to the present, nationalisation has not in any tangible manner modified the habits and structure of the French banking system."

The picture which the authors give of present-day France is not a very happy one. What is their solution? Internally, they believe conditions are favourable. "The technical conditions are already partially in existence. The tightening of the monetary market following price increase has restored to the Bank of France all its potentiality" (*sic*). But "the monetary policy of the Bank can have but limited effects as long as the foreign exchange control isolates the French market from its normal relations with foreign countries and as long as the official parity of the franc remains on a completely different level from its actual parity". So the authors advocate a return to free foreign exchange, with two conditions—(1) a simultaneous return to free foreign trade, except for a few essential priority items; and (2) a stabilisation loan "which would at the very start provide the Bank with the necessary operating funds". Then, by allowing the franc to fluctuate according to market trends and by buying and selling gold at corresponding prices, there would (probably) be a fall in the price of gold on the "clandestine market", until it reached a level at which the Bank was currently buying gold and the black market would disappear. "Moreover, businessmen and individuals who face increasing need of cash, and who have no other way out than using up their clandestine reserves or their foreign holdings,

would bring either gold or foreign currency to the Bank in order to obtain francs. The Bank would in this manner re-accumulate reserves. The francs which would thus be issued as a counterpart of the reserves would create a definite ease on the monetary market, since they would be meant to finance private needs and no longer a budget deficit; and this ease would correspond to immediate production needs. These needs are so great that there is no need to fear the end of such a process before practically all of the assets, abnormally hidden or exported, would have been returned to their proper place; in other words, not before the time when the monetary situation and the economic situation would be simultaneously restored". Does not all this sound rather over-simplified and naive?

In any event, the position seems to have improved considerably since the authors wrote and France may at last be on the road to recovery. Marshall Aid has (temporarily) removed the anxiety for the external value of the franc, a measure of political stability seems to have been restored, a more courageous fiscal policy is being pursued and production is beginning to rise. It is too early yet to judge, but we can hope.

J. S. G. WILSON.

The Measurement of Production Movements. By C. F. CARTER, W. B. REDDAWAY and RICHARD STONE. University of Cambridge. Department of Applied Economics. Cambridge University Press, 1948. vii + 135 pp. 12s. 6d.

With the publication of this monograph economists and statisticians become indebted anew to the authors of the London and Cambridge Economic Service Index of Industrial Production. After working up their pioneer index of industrial production in the United Kingdom for the post-war period, they have now made a second major contribution by furnishing full details of the index. The publication, in Part II of the monograph, of the particulars of the items included, the production indicators used, and the weights attached to each item, enormously enhances the value of the index. For the first time it is possible not merely to read, but to work with, the index and sub-indices. The compilation of such indices in the absence of full statistical material is as much an art as a science. As the authors make abundantly clear, the selection of particular items, indicators and weights is influenced on the one hand by the particular purpose for which the index is required, and on the other hand by the available statistics. For this reason the publication of the monograph is invaluable. Anyone for whose purposes the final indices as published are not quite appropriate can now derive other series with a minimum of work.

Part III of the monograph contains interesting material on the movement of British industrial production between 1907 and 1947 for fourteen industrial groups. The figures have been obtained by

drawing together a number of previous computations. They show an increase of 80 per cent. in total industrial output over the forty-year period; and they bring out clearly the change in the pattern of production towards a greater emphasis on electricity, metals, engineering and chemicals and the relatively smaller rôle played by mining and textile production.

Part I of the monograph consists of an exhaustive discussion of the principles and practice of the compilation of indices. The novice will find here some admirably clear passages on what an index of production cannot do, and an enormous number of practical pitfalls into which it is possible to fall when compiling an index. In this field there are a few golden rules which serve as guiding principles in the work, and for the rest the final selection of commodities, indicators, and weights is one of practical expediency. "Learning from experience" is probably the only method here. Precisely because, as the authors emphasise, so many choices in the actual construction of an index depend not upon general principles but upon the purpose for which the index is intended, the availability of statistical series and the availability of computing staff, it is questionable whether any amount of reading about the specific traps which one team of experts narrowly avoided will save future workers the necessity of their own practical experience.

H. MAKOWER.

The Land of Britain: Its Use and Misuse. By L. DUDLEY STAMP.
Longmans, Green & Co. Ltd. 1948. viii + 507 pp. 42s.

Professor Dudley Stamp's great work is based on a field-to-field record of land use in Britain, taken during the years 1931-34. Many people will remember how the aid of schoolchildren all over the country was enlisted to record, on the six-inch Ordnance Survey map, the utilisation of every parcel of land according to a simple scale: forest and woodland; meadow and pasture; arable land and market gardens; moorland, commons and hillsides; gardens, allotments and orchards; buildings and land agriculturally unproductive; water. It was an immense task, and its execution is fully described in this volume, with all the attendant difficulties. Dr. Stamp then passes to a history of land use in Britain, tracing its evolution from the days of the self-sufficing village communities, when every parish had to produce practically everything needed for human existence. Even then, there was a division of function, grazing and meadow occupying the valleys, ploughland for corn-growing the drier parts above them, and rough grazings for summering livestock the higher elevations. Road construction, and subsequent improvements in transport, broke down this village self-sufficiency, substituting a national one, under which the agriculture of the country tended more and more to sort itself out in regions particularly adapted to its various branches.

Finally, the development of the prairie countries by the application of agricultural machinery, sea transport and ultimately refrigeration, led up to the breakdown of national self-sufficiency and gave us a form of land use dictated entirely by the pressure of competition with the products of all the world.

Thus, arable farming and corn-growing, once universal, tended to become concentrated in the drier and flatter eastern half of the country, while grassland and livestock characterised the wetter and hillier western half. This great change was associated also with a general reduction in the area devoted to corn production, under the competition of imported grains. At the same time, the continued development of internal transport and means of communication, first by the railways and more recently by mechanical road transport, continued the process of the segregation of types of farming. To this is due almost the whole of the location of the dairying industry for new milk production, and the growth of things such as the Cornish broccoli industry, while cheap coastal transport has made it possible to grow sugar-beet in south Sussex and manufacture it at King's Lynn.

While transport at home and abroad was the biggest factor, perhaps, in the absence of political intervention until recently, in the control of land use, other influences have been at work in modern times. Dr. Stamp points out how modern agricultural science has turned so much of the fenlands, Britain's richest grazings in Arthur Young's time, into her richest arable lands today; how market gardening and glasshouse industries have sprung up not only in places such as Pershore, where pears and plums are known to have been commercially produced three centuries ago, but in many other districts where they were unknown hardly more than a generation since. He shows the importance of soil types in these and in other developments, and in conjunction with the soil scientists he has worked out an elaborate classification of the land fertility of the country. At the same time, he draws particular attention to the overriding importance of factors other than fertility, such as climate, rainfall, accessibility of markets, etc. in determining the use of land for food production.

Dr. Stamp has a useful chapter on farm units and their layout and equipment. Layout is often bad, but there may be reasons for queer-shaped holdings and awkward-sized fields. Farms sometimes not more than one field wide, running for a mile or more from the valley to the hilltop, were designed to take advantage of shelter, water, cultivation and grazing, so as to make each a self-sufficient unit, while oddly-shaped fields arose from the inclosure of the furlongs in the open fields, themselves defined by the need to vary the direction of the ploughing as the contours changed, so as to secure surface drainage. The incidence of land ownership, aggravated today by the great increase in the number of owners, has made the reassembly of farms and fields into more convenient units for working, under modern conditions, a problem still awaiting its solution.

The book finishes with chapters on The Principles of Land Use, and National Planning. The work of the Land Utilisation Survey was, of course, entirely objective, but the contribution which its interpretation can make to the control and development of enterprise in which the use of the land is involved, is obvious. The great extractive industries, coal-mining, ironstone working, and quarrying, are determined by the location of the materials concerned, and so, often, are the heavy industries dependent upon them. The siting of light industries, however, the housing of workers engaged in them, the location of new roads, the provision of sites for national purposes, the reservation of national parks, etc., these are matters which are much more in the deliberate control of the community, and it is, perhaps, the main purpose of Dr. Dudley Stamp's work to determine the principles on which wise decisions concerning them can be taken, in the national interest.

C. S. ORWIN.

Men in the Pits. By F. ZWEIG. With a Foreword by RONALD H. SMITH. Victor Gollancz. 1948. 177 pp. 7s. 6d.

Dr. Zweig's first survey of English working-class life—*Labour, Life and Poverty*—attracted much attention, considerable admiration, and some criticism. The grounds for admiration are equally present in this study of the mines, which was sponsored by the Industrial and Social Order Council of the Society of Friends. There is the same evidence both of acute and penetrating observation of the subtleties of social life and of a capacity to win the confidence of all and sundry which is quite amazing in a man who developed this technique of direct investigation late in life and practised it for the first time in a foreign land. The grounds for criticism are less substantial, largely because the population studied is more homogeneous than in the first survey, and also because Dr. Zweig could get from management and from official sources a considerable amount of reliable factual and statistical information about the running and working of the mines, grades and earnings of workers, absenteeism and so forth. One is conscious of a more solid background to the subjective observation, and also of a greater probability that the types so skilfully presented, whether of persons or attitudes or situations, are in a significant sense "typical" of the population studied. This is vitally important, because Dr. Zweig's method of investigation leads, not to quantitative, but to qualitative results presented, not in statistical tables, but in collections of types. Each type must be true, that is coherent within itself and discoverable by observation of reality. It is an abstraction, but not a generalisation about a given group. Each group contains many types which are present in unknown proportions. But the type-picture is of no value if it represents merely one actual case known to the investigator. It acquires heuristic value in so far as it represents a recurrent product of the social situation. Dr. Zweig

cannot, by his methods, prove how representative his types are but he succeeds in convincing us that they are significantly so.

Absenteeism naturally figures prominently. The analysis of types shows what a wide variety of practices and attitudes is comprised within that single term. At one end the young unmarried man who can earn in three shifts more than enough to meet his normal weekly expenses; at the other end the older miner, rightly mistrustful of himself when a bit off colour or superstitiously discouraged by some traditional symbol of bad luck. It also shows that absenteeism is to some extent the historical child of casual employment. Isolation is another dominant theme—an isolation which, in the past, was made tolerable, or even precious, by intense concentration. To-day it is breaking down, and with it is broken that concentration on pit life which made of mining a career that held men and their sons for generations. Mechanisation has a similar effect. The young men look to it to make their labours lighter and find that it makes them at the same time duller, robbed of the individuality and skill which satisfied the need for self-esteem. Mechanisation also involves team work of a new kind which may play havoc with incentives.

The book challenges comparison with Mark Benney's *Charity Main*. Of course it is not so well written, and the material has not been dressed up as a novel of real life. We get types of attitude and behaviour rather than rounded types of persons. But, in its different way, it makes as deep an impression, and the two books in the main confirm one another and are in important respects complementary.

T. H. MARSHALL.

The Economics of Migration. By JULIUS ISAAC. Kegan Paul. 1947. 275 pp. 18s.

Dr. Isaac's contribution to the "International Library of Sociology and Social Reconstruction", edited (until his death) by the late Professor Karl Mannheim, fully maintains the standard set by earlier works in the series. Dr. Isaac has collected much statistical and historical material, and correlates this well with his analytical reasoning. The result is a clear and readable discussion of some of the chief aspects of his important and highly topical subject. The author's conclusions and recommendations are well reasoned and sensible, rather than original. In coming down on the side of international planning, even if his arguments will not convince all his readers, he does at least give specific reasons why, in this particular case, planning might give better results—even from the purely economic point of view—than *laissez faire*. In this connection he provides a new and interesting example of a possible divergence between the economic interests of the individual and of society: i.e., he points out that, in the absence of restrictions, emigration may take place from an under-populated to an over-populated country, if the effect of under-population in the

former country is more marked than the effect of over-population in the latter country, although "a restriction of emigration and immigration appears to be advisable for both countries concerned" (p. 73). He cites the emigration from Australia, Argentina and other "traditionally immigration countries" to the "old continent", during the Great Depression, as a possible case in point. It may, however, be suggested that this is a case of divergence between short- and long-run, rather than between social and individual interests. In other words, were not the emigrants from under-populated countries misjudging their own (long-run) interests?

In spite of its many merits, the book leaves one with a faint sense of disappointment, mainly because it omits or deals only very shortly and superficially with many topics which appear relevant and important. Perhaps the title raises undue expectations, and it should be noted that in his "Author's Note" Dr. Isaac limits his objective, by stating that his main aim is to examine the causes and effects of the great international migrations of the last hundred years, and then to attempt to estimate the contribution which a resumption of international migration might make towards economic reconstruction. He definitely excludes from consideration what he calls "forced migration" and other movements (such as temporary migrations) not falling within his own definition of "international migration", and he deliberately refrains from attempting any estimate of the probable extent or nature of future international migrations. But even so one cannot help feeling that undue emphasis has been laid on European emigration, on the one hand, and on white immigration into U.S.A. and the Dominions, on the other hand. The conditions and problems of Asiatic emigration, and the potentialities of immigration into South America are, for instance, hardly touched upon.

The illuminating application of theoretical concepts to historical examples and present-day problems is, perhaps, the outstanding achievement of the book. But it is clear that the theoretical concepts, especially with regard to the relative effects and merits, from the economic point of view, of international migration, on the one hand, and of alternative measures (such as freer international trade) on the other hand, need further development. To what extent, for instance, can free (or freer?) international trade achieve the same results—in particular, raise overall productivity and tend to equalise returns to the factors of production—as international migration? The answer to this question is obviously of extreme political, sociological and economic importance. Dr. Isaac does not pursue the question to its logical conclusions. He hovers on the outskirts. In one passage he suggests that free international trade necessarily tends to equalise returns to the factors of production (p. 272); elsewhere (p. 265) he states that the effects on returns to the factors depend on the relative elasticities of international demand and supply. Mr. Samuelson has recently argued (*Economic Journal*, June, 1948) that, other things

remaining equal, free international trade necessarily leads to equalisation of returns to the factors, but admits that in practice 'other things' have prevented such equalisation. One would like Dr. Isaac to analyse this theory and its application to actual cases, past and present. If it could be discovered by what means and under what conditions free international trade could secure the benefits sought by those who advocate free international migration, a real contribution might be made towards the (theoretical!) solution of one of the causes of international jealousy, and hence of war.

Many other interesting and controversial points in Dr. Isaac's book call for comment and discussion, but I will content myself here with drawing attention to the very interesting account of the capital transactions of immigrants, included in Chapter VII.

VERA ANSTEY.

The Monetary Policy of the Reserve Bank of India: A Study of Central Banking in an Undeveloped Economy. By K. N. RAJ. National Information and Publications Ltd., Bombay. 1948. 177 pp. Rs. 12.

This book is one of the best contributions to our knowledge of Indian banking published in recent years. The author begins the main part of his discussion with an outline of the development of monetary management in India and the events which led up to the establishment of the Reserve Bank. He then proceeds to discuss the rather conflicting theories which influenced the form of its constitution. In the nature of things, the final result was something of a compromise and the Bank was left very much to its own resources to determine what part it would play in the development and co-ordination of the institutions already existing. That stronger leadership might have been given is beyond question, but there were many difficulties and Dr. Raj has told the story of the Bank's early trials with an awareness of the local environment which will do much to assist our understanding of the underlying problems. The scope for central bank activity in this environment is also discussed at length and the study is rounded off with some suggestions for the further improvement of a banking system which is still not yet fully integrated.

It would be impossible to receive this book without indicating one's gratitude. But this is not to say that the work is without its limitations. First as to form, the study as presented is far too obviously a Ph.D. thesis and, before publication, it deserved a thorough overhaul and much re-writing. This is most apparent in the earlier chapters, which might well have been compressed into an introduction and the main study begun with Chapter IV—"The Development of Monetary Management in India". Indeed, a good deal of the "theorising" in Chapters I to III is not very relevant to the author's argument, which does not require the Keynesian twist which he endeavours to give it. The bibliography, too, would have been improved by judicious selection. Secondly, there is some evidence of inconsistency in the

argument. This is most apparent in his concluding suggestions, where Dr. Raj appears to ignore the evidence he has collected. He believes that there should be "a revival of the principle of 'mixed' central and commercial banking, which had been abandoned ever since the 'twenties'"—and abandoned for very good reasons. Dr. Raj refers with apparent approval to the Australian experiment of 1945, when the Commonwealth Bank was formally recognised as a central bank at the same time as it was enjoined to compete actively with the private trading banks. In suggesting a similar arrangement for India, he seems to have ignored not only all the very strong criticisms which have been levelled at this departure from accepted central banking practice in Australia, but even previous experience within India itself.

In another place, Dr. Raj has offered sound advice in suggesting that "the Reserve Bank should be given the right to issue specific instructions to the commercial banks on any particular aspect of their operations which is either running counter to its general monetary policy or which, it believes, can be adjusted to strengthen it." In an economy, where the immaturity of financial institutions renders the traditional techniques of discount policy and open market operations relatively ineffective, more direct methods must obviously be considered and a strong case can be made out for their use. The reviewer's only complaint here is that Dr. Raj did not build on his argument and put forward his own case for direct controls. Furthermore, such controls to be fully effective would have to be extended to the indigenous sectors of the financial and banking system. As Mr. Paish remarked in his Foreword, the main contribution of this book has been to emphasise "the lack of adequate credit-channels between the Reserve Bank and the ultimate users of agricultural, and sometimes industrial, credit," which "largely frustrates the power of the central bank to exercise any real influence over the bulk of the economy. The effects of an expansion of Reserve Bank credit, for instance, are more likely to be seen in an inflationary boom in the limited range of financial and commercial markets which are in close contact with the Bank than in any easing of credit in the small towns and villages up and down the country." In the opinion of the reviewer, Dr. Raj's suggestions for opening up these channels seem either to be far too tentative or to move in the wrong direction.

Finally, in parts of the central chapters on loans and discounts, open market operations, and the Reserve Bank's relations with the capital market, the analysis becomes rather confused and it is difficult to disentangle the true course of the events described.

But none of this is to suggest that Dr. Raj has not written a very useful book, in which he has brought together much information not previously available in this form and which will assist our understanding of the difficulties which beset a central bank attempting to operate in an underdeveloped economy.

J. S. G. WILSON.

The Rôle of Inventories in Business Cycles. By M. ABRAMOVITZ. National Bureau of Economic Research, Occasional Paper 26: May, 1948. pp. 26. \$0.50.

Into this brief pre-view of his forthcoming work on the cyclical behaviour of stocks, Dr. Abramovitz has contrived to cram a striking amount of extremely interesting data and analysis. His central theme is the great disparity of behaviour between different types of stocks, and his thoughts relate largely to a consideration of the Acceleration Principle. Having pointed to Kuznets's stress on the importance of inventories, he turns his attention to manufacturers' stocks and divides these into three main groups: (i) goods in process, which compose some 20 per cent. of the total; (ii) manufacturers' raw materials, 40 per cent.; (iii) stocks of finished goods held by their producers, 40 per cent.

Of the first, Abramovitz argues on *a priori* grounds that they move proportionally with output, which seems an almost inevitable conclusion. Strictly speaking, the second is the only type, dealt with by Abramovitz, to which the Acceleration Principle has been applied in previous writings; but usage has been extremely loose. Seventy-five per cent. of these stocks are held 'to follow manufacturing activity with a short lag, say, of two to four months' (13); 10 per cent. behave similarly, but with a longer lag; and the remainder are 'virtually independent of short-run changes in demand' (14). This last category raises some very interesting questions: to what extent would entrepreneurs like to vary these stocks proportionally with their output (the author notes that "whether manufacturers try to maintain a constant ratio of stocks to output is not clear" (12)), and does their inability to do so mean the emergence of "bottlenecks"? The analysis of the third group brings to mind the problem of the manner in which the buffer-like behaviour of some stocks here may affect the relationship between sales and investment in capital equipment.

All in all, Dr. Abramovitz whets one's appetite for what should be a most significant and interesting work, besides presenting some stimulating suggestions in this small compass.

A. D. KNOX.

The Social Medicine of Old Age. Report of an Inquiry in Wolverhampton. By J. H. SHELDON. Published for the Trustees of the Nuffield Foundation by Geoffrey Cumberlege. Oxford University Press. London, 1948. x+239 pp. Paper, 5s.; Cloth, 10s.

In 1947 the Nuffield Foundation published a report on the problems of old people. That report included data collected from a random sample of old people living in a number of areas of which the city of Wolverhampton was one. Dr. Sheldon, the Director of Medicine at the Royal Hospital in Wolverhampton, followed up this social survey by a medical one, and his results form the subject matter of this book.

Dr. Sheldon undertook all the field-work of this survey himself. He visited every surviving old person who was included in the social survey sample and questioned them closely regarding their physical and mental wellbeing. In addition he made contact with the old people's general practitioners and tried to obtain further information regarding their patients' health from them. Although he was unable to subject his sample to a full clinical investigation, he was able to assess and interpret their symptoms with a fair degree of accuracy and to apply uniform standards to them.

Dr. Sheldon's results form a valuable supplement (and in some cases a corrective) to the results of the earlier, rather naive survey. The main factor that struck him was the mental resilience of his subjects to some of the handicaps that old age inevitably brings. Particularly important amongst these is liability to falls, vertigo and a deterioration in the sense of hearing, and diseases of the feet. Dr. Sheldon gives figures showing the incidence of these defects and relates them to family structure, living conditions, etc.

Dr. Sheldon believes that a number of the disabilities from which old people suffer can be alleviated or remedied. He stresses the importance of having relatives of the younger generation living near the old people, who can then be helped in emergencies. Implicit in his report is a plea for mixed building and against uniformity in housing design so that old people should no longer be compelled to remain in houses which are unsuitable for them.

The author finds that women tend to continue doing their housework until they reach the age of approximately 80 years and he stresses the frustration which is felt by many men who are compelled to retire at a much earlier age and who find that they have nothing to live for. It would be of great interest if a random sample of men and women past retiring age could be clinically examined in order to ascertain more exactly whether or not they were fit for employment or for particular kinds of employment. It is one of the great difficulties in this type of work that it is hard to persuade a random sample of persons to undergo clinical examination, and it reflects no discredit on Dr. Sheldon's work to state that without such examination many of his results must remain tentative. Nevertheless, one closes his book with the feeling that one has obtained a clear and interesting picture of the life of old-age pensioners in Wolverhampton.

E. GREBENIK.

Bank of International Settlements. *Eighteenth Annual Report* (1st April, 1947—31st March, 1948). 1948. 174 pp.

It is hard to imagine a more valuable survey of the main economic—or, more specifically, monetary and financial—events, trends and policies of the relevant year (in this case April 1947 to March 1948) than that provided by the Annual Report of the B.I.S. This issue is of

particular interest on account of its review of the opening phases of the European Recovery Programme, of its analysis of the balance of payments position of the chief countries, and of its account of the re-establishment of the convertibility of sterling, and of the suspension of convertibility only a few weeks later. The Report is, as usual, illustrated throughout by valuable statistical tables and charts. Its reproduction of the text of the First Agreement on Multilateral Monetary Compensation, of November 18th, 1947, is also useful.

The Report's treatment of its main topics is admirably broad, bringing into the picture many factors whose close relationship to these problems is not always adequately recognised. For instance, in discussing the post-war restoration of monetary order (as a necessary preliminary to the restoration of international trade) due weight is given to the budgetary situation and the relationship between national product and investment in each of the main countries. The analysis of the balance of trade situation is similarly accompanied by data on world production and movements of gold, and on international credit conditions and the trend of interest rates.

Perhaps the most valuable chapter of all is that on European Payments Agreements and the attempt to prepare the way for eventual multilateral convertibility by means (for instance) of a European multilateral monetary compensation agreement. The explanations given of the objectives and mechanising of the various payments agreements are admirably lucid.

The chapter on the current activities of the B.I.S. brings this subject up to date, but it may be suggested, now that memories are becoming dim of the situation and ideals prevailing when the Bank was instituted, that a brief description of the original objects, functions and methods of the Bank and a more extensive comparison of its position when first founded, with its position to-day, might be included in next year's report. In all other respects the 18th Report deserves little but praise. It is no mean achievement to provide in handy form the main available data appertaining to the monetary and financial situation of all the principal countries of the world.

VERA ANSTEY.

Der Suezkanal als Konjunkturanzeiger der Weltwirtschaft. By GEORGES MEHRLIN. Zürcher Volkswirtschaftliche Zeitfragen, Band 36. Dr. H. Girsberger, Verlag, Zürich. 1945. xvi + 221 pp.

This is a well documented and conscientious piece of work. It covers much wider ground than one would expect from the title, for the author tackles his main subject on the basis of a careful and interesting analysis of the various economic and financial factors which have influenced the traffic through the Suez Canal from its opening date until 1938, apart from those originating in the trade cycle. The main theme, however, is to examine the question as to

whether statistics of Suez Canal shipping can be regarded as a suitable international barometer of the trade cycle. The author's answer is affirmative. He sees the better indicator of cyclical influences in the North-South traffic, and not, as do several previous writers, in the traffic in the opposite direction, and is able to put forward convincing arguments for his view.

The book, although written in a lucid and straightforward manner, suffers somewhat from repetitions and could with advantage have been shorter by, perhaps, fifty pages. In particular, readers of this kind of study might have been credited with an acquaintance with the better known theories of the trade cycle, and the lengthy bibliography appears rather padded by the inclusion of economic and statistical textbooks.

But these are minor criticisms of an otherwise useful and interesting monograph.

CHARLOTTE LEUBUSCHER.

Social Survey of Singapore, 1947. Department of Social Welfare, Singapore, 1947. 126 pp. Appendices A—H, 58 Tables.

The Singapore Department of Social Welfare was founded in June, 1946, so that it might deal with certain aspects of want, delinquency and leisure which had previously not been the special concern of any government department. The Department became acutely aware of the complete lack of data on which social policy could be based and it consequently proposed to institute a series of surveys into local social conditions. At first it was the intention to conduct surveys on specific problems, but it soon became evident that the lack of data was so fundamental that it was not even possible to establish useful hypotheses on which to conduct the surveys. Consequently, the Department decided to carry out an *extensive* survey on social conditions in Singapore. After several pilot enquiries, the main survey was put into the field in December, 1947. C.R.

The area covered by the survey was the Municipality of Singapore, which contains 72 per cent. of the whole population of Singapore. It was decided that a random sample of 5,000 households (roughly one house in thirty in the Municipality) would have to be taken to secure adequate representation of the three main race groups, Chinese, Indians and Malaysians. Unfortunately, this sample had to be drawn from a list of houses, instead of households, because no list of the latter was available. This may, as the report points out, have led to some bias. The only check of the accuracy of the survey is provided by the preliminary results of the 1947 Population Census, and the survey figures compare closely with these as regards geographical and racial distribution. The race distribution of Singapore is such (Chinese 79 per cent., Malaysians 11 per cent., Indians 8 per cent., Others 2 per cent.) that the sample necessarily contains only very few Malaysians and Indians. It may be wondered whether the survey committee

was right in deciding not to take a variable sampling fraction, i.e., to include a larger proportion of the smaller racial groups and then weight the results accordingly. As it is, some of the results for the small groups must be open to question. The refusal rate of about $2\frac{1}{2}$ per cent. appears extraordinarily low for a survey conducted under difficult conditions. On the other hand, it may actually have been an advantage to deal with a population which is not yet over-surveyed and too suspicious of official enquiries.

The results presented in the report cover a large field, the main chapters dealing with population and household characteristics, occupation and education of wage earners, housing, education of children and ties with the homeland. Most of the results are shown separately for the three main racial groups and split, within each of the groups, into "indigenous" (born in Singapore or the Federation of Malaya) and "immigrant". While many of the results are of considerable interest, one may perhaps single out for special mention those for illiteracy and overcrowding. The following figures (relating to heads of households and subsidiary wage earners) show the illiteracy position :

| Race Group | | | | | | Percentage illiterate |
|-------------|----|----|----|----|----|-----------------------|
| Chinese : | | | | | | |
| Immigrant | .. | .. | .. | .. | .. | 53 |
| Indigenous | .. | .. | .. | .. | .. | 37 |
| Indian : | | | | | | |
| Immigrant | .. | .. | .. | .. | .. | 35 |
| Indigenous | .. | .. | .. | .. | .. | 27 |
| Malaysian : | | | | | | |
| Immigrant | .. | .. | .. | .. | .. | 66 |
| Indigenous | .. | .. | .. | .. | .. | 24 |

Altogether, nearly half of those about whom details were obtained were illiterate. When the illiteracy rates are shown by the (nine) occupational groups, significant variations appear. One is a little startled, perhaps, to see that 5 per cent. of Professional and Big Business Owners are illiterate and two per cent. of Clerks ! (The latter possibly due to misclassification.)

With regard to housing, a state of severe overcrowding is revealed. As an approximation, it may be said that two-thirds of the households (containing three-quarters of the persons) are overcrowded. This overcrowding is spread, oddly enough, over all occupational groups and the report concludes that poverty is probably not the chief cause of overcrowding. Whatever the main cause, there is clearly an urgent need for more housing.

It is only a recognition of its intention, and in no sense a criticism, to say that this is a purely statistical survey. Such a survey was an essential preliminary to any sociological investigation and, now that the broad outlines of the social picture of Singapore have been

discovered and tabulated, much fruitful research should be possible. It must be said, in conclusion, that the survey appears to have achieved its aims with quite remarkable success. It is no exaggeration to say that it has improved on the methods and results of some English surveys carried out under far easier conditions.

More especially, the severe standard of accuracy and self-criticism maintained throughout the report is altogether salutary. Here is a survey report which, unlike many others, tends to claim too little rather than too much for the correctness of its results. It should be read by all interested in social surveys.

C. A. MOSER.

Economics: A General Textbook For Students. By FREDERIC BENHAM.
Fourth Edition. Isaac Pitman & Sons, Ltd. 1948. 542 pp.
12s. 6d.

The fourth edition of this well-known textbook contains no substantial changes compared with the 1943 edition. The last chapter on "War Economics" has been replaced by one dealing with "Post-War Economic Problems" and there have been one or two alterations in the footnotes in order to bring some of the descriptive material of the book up to date.

This new final chapter covers a wide range of topics in 36 pages. The Cost of the War, National Income ($3\frac{1}{2}$ pages), the Aims of Economic Policy, Full Employment, Better Standards of Living, Less Economic Equality, Social Security, Nationalisation, Cheap Money, Rationing and the Future of International Trade—all these subjects are cursorily treated but, it must be admitted, apart from a very thin section on National Income, the summary of events is skilful enough. A bibliography for these subjects at the end of the chapter would have been of some assistance to the student.

How has this book stood the test of time? Can Professor Benham still claim that "this book is a fairly complete introduction to the science of Economics" and that extensive revision is not required because "the fundamental platitudes of economics are still as true and as important as ever they were"? A textbook of this nature has the difficult task of reconciling the needs of two different types of student. The non-specialist requires a combination of elementary economic theory with its immediate practical application. The student who wishes to specialise requires a convenient point of departure for the more distant ports of call in the land of macro-economics. As far as it goes, Professor Benham's book fulfils the first requirement if only because of its emphasis upon "a realistic account of how the economic system works". Even then it is questionable if the Theory of Demand is a suitable way of introducing Economics to the beginner. It is doubtful if the book has such pride of place as it may have had before World War II as far as the requirements of the second type of student are

concerned. Certainly Professor Benham's treatment of the Theory of Costs and his own special subject International Trade is good but the student will now find the transition from 'Benham' to the "New Economics" rather bewildering. Therefore it is to be regretted that the author did not take this opportunity to bring the theoretical analysis into line with the requirements of more advanced study. It is not that the "fundamental platitudes" have become anachronisms but that they are now explained in different terms and require a different emphasis.

ALAN T. PEACOCK.

SHORTER NOTICES

An Outline of Money. By GEOFFREY CROWTHER. Revised edition. Nelson. 1948. xiii + 417 pp. 12s. 6d.

The revision of this excellent textbook has been so thorough, in taking account both of events and of the development of thought, that the proportion of completely unchanged pages must be very small. Nevertheless, the framework of the argument remains unchanged, and its capacity to bear such detailed revision stands as witness to the soundness of the 1940 edition. It is a pity that the notion of "long cycles" remains since, even if such things exist, they are unsuitable for elementary exposition. But usually the reader is warned if there are more difficult things left unsaid, and in this, as in other respects, this book, now brought up to date, is likely to remain for many years much the best first-year text.

Enquiry concerning Political Justice. By WILLIAM GODWIN. Edited by F. E. L. PRIESTLEY. University of Toronto. Department of English Studies and Texts. No. 2. The University of Toronto Press. 1946. 3 Vols. lvi + 463, 554 and 346 pp. \$12.50.

The first two volumes of this finely produced edition contain a photographic facsimile reprint of the third edition of Godwin's *Political Justice*, the last edition revised by him for publication in 1798. The third volume contains Professor Priestley's critical apparatus, including a long introduction of more than a hundred pages, notes to the text comprising an indication of every significant variation in the text from the first to the third edition, and a reproduction of chapters altogether omitted in the later edition. The two last features make this reprint in effect a "Variorum" edition.

Professor Priestley's Introduction is almost exclusively doctrinal and hardly deals with Godwin's life except in so far as it bears directly on the development of his thought; it also presupposes a good deal of knowledge of the background against which Godwin's work must be seen. There is a fairly full discussion of Godwin's economic thought.

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A Possible Intra-European Payments Scheme¹

By R. F. KAHN

I

THE General Report of the Committee of European Economic Co-operation (July-September, 1947), which prepared the way for the European Recovery Programme, included a "Report of the Committee of Financial Experts", in which transferability of European currencies was advocated. There followed the "Report of the Committee on Payments Agreements" (27th September, 1947). The Committee of Experts had taken the view that "transferability . . . must ultimately rest on the principle that the amounts owed to a country in excess of the margins provided for by payments agreements should be convertible into gold or United States dollars". The Committee on Payments Agreements had before them a Benelux proposal for settling "in gold or convertible currency the balances in excess of the credit margins laid down in the payments agreements to the extent that the surplus countries are entitled to ask for such a settlement" (i.e., "to make current payments to countries outside the group"). The subsequent sad history of the attempts to evolve a satisfactory scheme suggests that it might have been wise to learn to walk before any attempt was made to run.

This article is aimed at a strictly limited objective. Its object is to discuss a particular proposal for an Intra-European Payments Scheme. While, so far as is known, the proposal has not been put forward in the precise form in which it is presented here, it bears a close ¹family relationship to proposals which have been published,² and no serious claim for its originality is advanced. The discussion will be based on simplifying assumptions, some of them perhaps extreme and cavalier, but it is only in this way that it is possible to avoid the confusion which has attended the elaboration of the actual Payments Agreements for 1948-49 and for 1949-50. No serious attempt will be made here, except by implication, to appraise these actual Agreements, one reason being that it is still far from clear how they are intended to operate.³

¹ This Article was completed before devaluation took place.

² See, for example, *The Economist*, 29th January and 5th February, 1949 (pp. 203 and 248), and 28th May, 1949 (p. 1003).

³ One major difficulty is that it never seems to have been clear how, if at all, a country's actual Marshall Aid allocation depends on the outcome of the scheme, and the references to "conditional aid" are not illuminating. One suggestion is that a country which fails to achieve the credit balances preconceived under the Scheme will to that extent lose Marshall Aid dollars, but that the countries which correspondingly end up with smaller debit balances than those laid down will not be compensated by additional dollars. If this asymmetrical explanation

II

Some of the obscurity which surrounds the subject arises from confusion between "transferability" and "convertibility" of drawing rights. Transferability means that a country in exercising her rights is free to draw on the foreign exchange of any other participating country. Convertibility means that, instead of exercising her rights to the exchange of another participant, a country can claim free (convertible) exchange, i.e., "dollars" (if needed for current transactions), to be contributed by, or at the expense of, the participating countries which extended the abandoned rights.

The confusion between "transferability" and "convertibility" is perhaps understandable in view of the effect of Belgium's participation in a scheme of this kind. Such non-transferable drawing rights as are likely to be fixed would, thanks to Belgium's competitive position as an exporter and in particular to the nature of the goods which she has on offer, be partially diverted to Belgium if they were rendered transferable. The result would be a worsening of the trade balance with Belgium of those participating countries (in particular the sterling area) whose foreign exchange would now be in less demand. And under Belgium's payments agreements, e.g., the one which governs her financial relationship with the sterling

Footnote 2—Continued from page 293.

is correct (and the fact that there is no *negative* conditional aid necessarily involves such asymmetry), and if it was foreseen in the course of the year by the authorities concerned, it is natural enough that the outcome for 1948-49 should have conformed so closely to the planners' dreams (since any deviation from it would have penalised one set of countries without compensating the other). But such conformity is likely to have been achieved at the expense of an uneconomic distortion of European trade, which no doubt persists in the 1949-50 pattern. (The Intra-European Payments Agreement for 1949-50 provides that "the amount of bilateral drawing rights may be revised if such revision is necessary to correct any gross error of calculation in the original estimate" but not—an interesting distinction—"solely because of trade and payments . . . are not proceeding as originally expected".)

"Certain Principles of Commercial Policy" were recommended by the Council of O.E.E.C. on 16th October, 1948, in order to reduce what is somewhat curiously described as "disequilibrium" ("equilibrium" apparently involving a state of complete bilateral barter). "Net debtor countries" (i.e., "countries which are in substantial deficit. . . with other participating countries taken as a whole") are to increase their exports to net creditor countries, who are to increase their imports from net debtor countries. The result of accepting these principles would be that debtor countries would forgo part of the free gifts offered to them and creditor countries would endanger their Marshall Aid dollar allocations. Cf. *Economic Survey of Europe in 1948* (Economic Commission for Europe), p. 145.

If it is true that by failing to reach the credit balances laid down in the Payments Agreement, a country like the United Kingdom will be risking the loss of a corresponding portion of her Marshall Aid, her authorities will be hesitant about going too far in admitting additional imports from a country like France; and in certain situations they may regard such additional imports as equivalent to dollar imports. It is relevant at this point to take note that in 1948 the reduction of the United Kingdom aggregate imports, compared with 1938, was achieved almost exclusively at the expense of her imports from Europe, her imports from the rest of the world, taken as a whole, being almost the same in aggregate volume as in 1938 (*Economic Survey of Europe in 1948*, p. 68). This fact strengthens the force of the criticism of the substantial unrequited exports to Europe which the sterling area was at that time making.

area, this would involve a loss of gold by those countries in favour of Belgium. So it is that transferability would result in some of the same consequences as convertibility, and that the Agreement for 1949-50 provides for transferability only to a very limited extent.¹

That it provides for it at all is the result of the granting of credits by Belgium to some of the other participants, and of acceptance of an over-all limit to the degree of her own participation. But it is clear that any scheme of this kind in which Belgium participates must be limited and cramped, so long as the Belgian payments agreements with some of the other participants continue in their present form.² Belgium stands in the same kind of economic relationship to most of the other European countries as the United States does to most other countries in the world. And any attempt to introduce into European trade the doctrine of non-discrimination *vis-à-vis* Belgium would have the same effect of reducing the aggregate of European trade as the effect on world trade of abandoning discrimination against goods which cost dollars.³

I shall assume therefore that all the countries participating in the Scheme abandon such claims on other participants to gold, or convertible currency, as their trade surpluses would secure for them under existing payments agreements and accept instead the dollars which they would secure under an Intra-European Payments Scheme of the kind outlined below. If Belgium (or equally Switzerland) refused to accept this condition she would have to remain outside the scope of the Scheme. Politically that would make bad sense. But economic realities are at the moment dominant. Actually, it seems probable that, faced with the stark alternative of exclusion, Belgium would be prepared to accept the provisions of such a Scheme.⁴

¹ The Agreement for 1948-49 provided for a bit of permissive transferability in the shape of "second category compensations" but no such compensations were negotiated. Similar provision is made in the Agreement for 1949-50.

² The point is, of course, if we take the Anglo-Belgian Payments Agreement as the leading example, that the balance under it reached the "gold point" soon after the Agreement was signed and that ever since then the sterling area's adverse balance of payments with Belgium has had to be liquidated in gold. This is not the place in which to plead for radical modification of the pattern of payments agreements, but it is clear that the abrupt transition at the gold point from complete inconvertibility to complete convertibility represents a crazy element in our financial arrangements.

³ In putting on Belgium's financial position the blame of standing in the way of transferability, one is really contrasting a payments scheme involving transferability with a payments scheme in which the arrangements are bilateral. If the comparison is with not having a payments scheme at all, the case is rather different. Unless the doctrine of "conditional" aid is entirely ignored, the disappearance of the sterling area's favourable balance with Europe—such as would occur in the absence of a payments scheme even more violently than under a payments scheme based on transferability—would mean a reduction in the United Kingdom's dollar aid allocation, extra dollars now being presumably needed to enable France to buy with dollars the goods which she could no longer pay for with sterling; and the United Kingdom would be worse off than under a payments scheme based on transferability.

⁴ It is pointed out under (b) of Section IV of the text that it may work out better than would at first sight be expected.

III

I come now to describing the Scheme. It is not at all dependent on the provision of Marshall Aid,¹ or anything equivalent—except in so far as the well-being of the European economy depends on Marshall Aid—and when such Aid ceases the Scheme could still continue. Indeed, the premature cessation of Marshall Aid would enhance the need for such a Scheme, because Europe would then be more dependent on its own resources. What is necessary is that the Marshall Aid received by each country should be entirely “basic”, and none of it “conditional”,² the rewards and punishments resulting from intra-European balances being settled by the Payments Scheme and not by adjustment of Marshall Aid quotas.³ It is fundamental to the Scheme which I put forward that this is done (and to argue that it cannot be done is to admit that there is no meaning in the distinction so often drawn between “basic” and “conditional” Aid). And, of course, the fixing of the individual Marshall Aid allocations (as opposed to the global sum) in each subsequent year must not be influenced by the manner in which the pattern of European trade has developed in the meantime. Or rather, the authorities in each participating country must not imagine that the allocations will be so influenced: their actions, in so far as they affect European trade, must be governed by the provisions of the Payments Scheme and not by hopes or fears of repercussions on their Marshall Aid allocation.

The Scheme, then, provides for a multilateral clearing between the participating countries of payments resulting from current transactions. Over any interval of time some of the participants will accumulate credit balances and some debit balances in the clearing, these representing the accumulated balance of payments on income account

¹ The Scheme, in contradistinction to Marshall Aid, is not primarily calculated to help a country over an over-all balance of payments deficit, but to enable it to marry deficits in one direction with surpluses in another. There is no particular reason why the recipients of Marshall Aid should be the participants in such a scheme, which might more appropriately comprise all or most of the soft-currency countries of the world.

² For example, each country's allocation might be calculated on the assumption that it had a zero balance of payments on income account with all the other participating countries taken together. The Marshall Aid allocations for 1948-49 appear originally to have been based on such an assumption, but they were not adjusted subsequently to take account of the Intra-European Payments Agreement for 1948-49. For 1949-50 the negotiation of the allocations and of the Payments Agreement took place more or less simultaneously, and it can presumably be assumed that, in a manner which perhaps smacks of horse-sense rather than of logic, each takes account of the other.

There is, however, no particular virtue about zero balances as the notional basis for fixing Marshall Aid basic allocations. It might be easier, and perhaps fairer, to take as the datum position one in which the sterling area had a favourable balance with the other participants of, say, £30 million a year, France an unfavourable one of, say, £50 million a year, and so on; and to work the Payments Scheme in terms of deviations (in either direction) from these datum balances instead of in terms of the actual balances. It would unduly complicate the explanation in the text to translate it into this more general form, but there is no essential difference.

³ See, however, footnote 1 on p. 297. The possibility in a particular case of a *negative* Marshall Aid basic allocation cannot be ruled out *a priori*. It would represent a notional contribution by the particular country to the funds provided by the United States.

of each country with all the other participants taken together. The algebraic sum of these credit and debit balances will always be zero.

I come now to the essence of the Scheme. From time to time (e.g. at six-monthly or yearly intervals) these balances would be liquidated in dollars (or gold), the owners of the credit balances receiving dollars from the owners of the debit balances.¹ But instead of such liquidation taking place at exchange parity (in which case the Scheme would be tantamount to the resumption of full convertibility by all the participants) it would take place on the basis of reckoning the European currencies at a discount in terms of the dollar. This discount, the same of course for all the European currencies involved, I shall call the "European Discount". It would be altered from period to period according to need, but it would be fixed at the beginning of each settlement period (or, perhaps better, a couple of months before) for the whole of that period, so that the authorities of each country could operate their economies with full knowledge of the value of intra-European exports, and of the cost of intra-European imports, passing between their own country and the other participants. The European Discount would not of course in any way apply to the rates of exchange at which transactions were effected between traders in the various countries. It would apply only to the settlement of net balances arising from intra-European trade. And such settlement would be definitive—the liquidation in dollars, on the basis of the Discount, would be complete.²

I do not attempt to estimate what this European Discount should be, either at present or over the next few years, but my guess is that at the present time (and with present rates of exchange—those of early September, 1949) a discount of rather less than 50 per cent. would work out about right.

IV

The main advantages of a scheme of this kind can be summarised as follows:—

- (a) It would enable trade inside Western Europe, and between Western Europe and the sterling area, to be provided with a

¹ These payments might be effected by adjustment of Marshall Aid allocations and they would then become "conditional aid", such conditional aid being negative as often as positive. It is simpler, however, to regard them as made direct between the participating countries. No "dollar pool" is necessary—the only "pool" is one of which the algebraic magnitude is zero—nor indeed is Marshall Aid necessary for the operation of the Scheme, but of course the countries which run into debit on the European clearing must secure sufficient net dollar receipts from their trading and financial relations with other parts of the world to clear their European debits: the Scheme is not intended to finance an over-all balance of payments deficit.

² This is the main respect in which the Scheme differs from other similar proposals. What has usually been proposed is in effect that a *proportion* of the credits and debits should be settled in dollars, *on the basis of exchange parity*, and that the balance should be left outstanding. These residual balances would, I suggest, rapidly clog the machine. Nobody would know how to value them, and European trade policy would be paralysed by much the same doubts and uncertainties as afflict it at present. Also they would become (like the war-time sterling balances) an awkward heritage for posterity and an obstacle to the resumption of normal financial relations.

multilateral instead of a bilateral basis.¹ The advantage of full "transferability" would be secured, without the disadvantages of full "convertibility".

- (b) In so far as participation in the Scheme was general, the obstacle to freer European trade represented by the gold points in certain payments agreements would be circumvented. Nevertheless, intra-European credit balances would still yield dollars (and if it were possible for, e.g., Belgium's favourable balance with the other participants to increase, under the operation of the Scheme, in proportion to the European Discount, Belgium's total dollar (or gold) receipts from the other participants would be maintained).
- (c) Resumption of normal economic relations would become a continuous process, instead of involving an abrupt break from a regime based on free gifts and interest-bearing loans by some European countries to others. The way to restoration of full convertibility would be open. As conditions became more normal, and in particular as exchange rates became readjusted to current needs, the European Discount could, and should, be progressively reduced. Its complete elimination would spell the restoration of full convertibility.²
- (d) Additional countries could at any time join the Scheme (irrespective of whether or not they were recipients of Marshall Aid or covered by the European Recovery Programme).
- (e) The pattern of European trade would be free to develop under economic influences instead of being subjected to the strait-jacket of bilateralism (moderated somewhat by the system of transferable accounts), and of the preconceived estimates of civil servants, who, apart from other human failings, can never have been clear to what assumptions their estimates of trading balances were intended to relate.
- (f) In influencing the course of imports, the authorities of each country would exercise a preference for imports from Europe

¹ It would *enable* this to be done, but only to a limited degree would it actually, taken by itself, secure that it happened. See Section VI of the text.

² Convertibility is too often confused with non-discrimination. The one relates purely to finance, the other also to trade. So long as trade is controlled by means other than exchange control (as in most countries it is), the restoration of convertibility does not necessarily mean that discrimination against dollar goods is abandoned. Indeed, it is precisely by maintaining, and stiffening, such discrimination that a considerable section of the world should be able fairly soon to restore convertibility—as it is desirable that it should, so as to enable world trade to become as multilateral as circumstances permit. Devaluation, while rendering discrimination less necessary, would eliminate the need for it altogether only if carried to such lengths as, by reason of the effect on the terms of trade, to impose an intolerable burden on the non-dollar world.

(and the sterling area) over imports costing dollars,¹ such as it was the presumed object of the Marshall Plan to encourage and the two actual Intra-European Payments Agreements have encouraged to only a very limited extent.

- (g) But, though costing less than their equivalent in dollars, additional imports from the other participating countries would by no means cost nothing.² The European Discount would from time to time be fixed at such a rate as to give the stimulus to European trade that was wanted but not more than was wanted. So long as Europe's economic condition tends, by and large, towards the inflationary, there is a distinct limit beyond which it is undesirable to carry the stimulation of intra-European trade, which must to some extent carry with it a reduction of Europe's exports to dollar countries and a diversion of resources from important domestic uses.³
- (h) The authorities of each country would be stimulated to assist, in so far as it was in their power to do so, exports to dollar destinations even at the expense of exports to European destinations. One of the anomalies of the present position is that it is morally embarrassing, and intellectually difficult, for a Minister or Civil Servant to advise on the relative desirability of these different destinations. How is the dollar export drive to be reconciled with the case for increasing trade within Europe? The European Discount would give the answer.⁴ And, here again, there would now be less danger

¹ But it is inherent in the argument of the preceding footnote that discrimination against dollar goods should be carried beyond the point indicated by the amount of the European Discount, some discrimination being still desirable after the Discount has been eliminated (indeed, contributing to its early elimination). It is by means of one-sided restrictions on dollar imports which are not fully matched by stimulation of dollar exports that the non-dollar world can avoid the full adverse movement of the terms of trade which a regime of complete multilateral non-discrimination would entail.

² As, for certain countries and in certain situations, they appear to do under the actual Intra-European Payments Agreements (under which—it is not too great an exaggeration to say—additional intra-European imports cost either nothing at all or their full equivalent in dollars, and additional intra-European exports either yield nothing at all or avoid a loss equal to their full equivalent in dollars).

³ Under Lord Keynes' International Clearing Union, "no one is entitled to demand gold from the Union against a balance of *bancor*". But "the expansionist tendency of the plan, which is a leading recommendation of it as soon as peace-time output is restored and the productive capacity of the world is in running order, might be a danger in the early days of a sellers' market and an excess of demand over supply". (Cmd. 6437, pp. 9 and 19.)

⁴ For exports no such qualification is necessary as was indicated in footnote 1 above for imports. It is of the essence of the terms-of-trade argument in favour of retaining, even after full convertibility has been restored, some degree of discrimination against dollar goods, and of not carrying devaluation so far as to render this unnecessary, that the practice of discrimination should then be confined to the imports of non-dollar countries, and not extended to their exports. What is aimed at is some degree of restriction of the non-dollar world's imports from the dollar world, such as, provided that it is not carried too far, will, by reason of the effect on the terms of trade, in accordance with well-established classical principles, create a better situation for the non-dollar world (and of course a worse one for the relatively wealthier dollar world) than a more free-trade situation, in which the total world dividend would be larger but (regard being paid to distributional considerations) world welfare would be smaller.

that the "closer economic integration of Western Europe" would simply result in a loss of dollar earnings.

- (i) At the same time the worship of dollar exports would not be carried *à outrance*. Additional exports to European destinations would also provide dollars, though not so many as the same amount of dollar exports.

The fixing of the European Discount must to some extent be a matter of trial and error. It would have been fixed too low if the Scheme was showing signs of resulting at the settlement in excessive dollar payments by some participants to others, and if it gave an inadequate stimulus to the participants to buy from one another in preference to buying from outsiders. The Discount would have been fixed too high if the Scheme was found to give an excessive stimulus to European trade, at the expense of European exports to, and of European imports from, non-participating countries.

V

One question that might be asked about a scheme of this kind is how the operation of the European Discount differs from devaluation of the European currencies concerned and whether devaluation would not be a simpler way of achieving the same result. The difference is that devaluation has a direct influence on the actions of individual traders, while the direct influence of the European Discount is felt only by governments, who need not allow their actions to be influenced by it to any greater extent than seems to them desirable. Devaluation may be undesirable on the grounds that it would result in an excessive reduction of dollar prices by individual exporters.¹ But the European Discount would have no effect on the actions of exporters except to the extent that it stimulated governments to exercise an influence on them—and even then a government would find some difficulty in finding ways of exercising such an influence.

On the other hand, it is perfectly true that as and when devaluation took place, the proper value of the European Discount would be reduced by the average amount of the devaluation. And it is also true that the European Discount would have the same effect as an equal amount of devaluation in writing down the dollar values of intra-European balances.

There are also certain fiscal consequences to be noted. Participating countries with credit balances on the European clearing would have to find from their Exchequers the sums by which the European Discount wrote the balances down, while equal sums would find their way into the Exchequers of the countries with debit balances. These

¹ This is not the place in which to discuss the apparent paradox that those who oppose devaluation are often most emphatic as to the desirability of exporters being able and willing to charge more competitive prices in dollar markets,

fiscal disturbances would of course be smaller in magnitude than those involved by the actual Intra-European Payments Agreements and very much smaller than those involved by Marshall Aid, in which they would naturally be merged. The important thing would be to ensure that they did not, in one direction or the other, induce the fiscal authorities to deviate from the policy best calculated to promote stability.

VI

One of the main purposes of payments agreements is, or should be, to prepare the way for fruitful trade agreements.¹ A great deal of present-day discussions about international trade, both in the world and in the European context, harp on net balances—the dollar shortage, the sterling area's unrequited exports, and so on. The lack of balance in the world economy is, of course, very serious. But it is still more important not to forget the old-fashioned idea that if every country simultaneously increased its exports, each in step with the others, world trade, and welfare generally, would be increased without any disturbance to trade balances. A really effective intra-European payments scheme would help by permitting balances to appear which could not be financed without it, and by providing a multilateral clearing of trade balances. But a negotiated lifting of import restrictions on a reciprocal or, better still, a multilateral basis (such as is now at long last being attempted for Western Europe) would still be necessary if the full benefits of the payments scheme were to be enjoyed.

This raises the question of encouragement of trade in luxuries, to which any suggestion of increasing the volume of intra-European trade invariably leads. The danger of diversion of resources from production of goods for export to dollar destinations, and from production important to the domestic economy, has been accepted above. It has been suggested that the European Discount should be sufficiently low to discourage profligacy on the part of importing countries. The question that might be raised, however, is whether luxury imports which cost *some* dollars (even though less than they would if imported from dollar countries) should be admitted at all. Here it is important to notice that the argument about diversion of dollar exports is not all on one foot. If the wealthier classes are allowed frivolous French cheeses to spend their money on, they will spend less on other things and this will give some stimulus to exports. Additional imports

¹ One of the troubles, from the point of view of the United Kingdom, about the sterling area is that the trade arrangements are far behind the payments arrangements. The readiness with which sterling-area goods are admitted into the United Kingdom might have secured, as a result of reciprocal agreements, a much greater readiness on the part of other sterling-area countries to keep down dollar imports. (The root of the trouble is, of course, the idea that imports from the sterling area cost us nothing but, even if this were true, it would be no reason for not using them as a bargaining counter.) And, while the United Kingdom payments agreements with non-sterling-area countries cover the whole sterling area, the influence of trade agreements on the trade with non-sterling-area countries of sterling area countries, other than the United Kingdom itself, is very imperfect.

"mop up purchasing power", and there is just about as much in this argument, and perhaps a bit more, as in the argument that it would help exports to increase taxes, reduce Government expenditure, and reduce capital investment.

VII

The attempts made to negotiate a more adequate Intra-European Payments Agreement for 1949-50 appear to have been wrecked partly by Belgium's unwillingness to deviate more than a little from the gold-standard conditions which attach to her trade with the other participants, but partly also by the United Kingdom's natural solicitude for her own special interests. So far as can be diagnosed, these interests include two main considerations.

First of all, there is the fear that United Kingdom exports to the other European countries, and in particular to France, would fall if France were free to buy where she liked in Europe, and in particular from Belgium, instead of being given drawing rights which could be exercised only in the sterling area. In so far as this fear is justified, it means that the operation of the Intra-European Payments Agreement for 1948-49, and of the United Kingdom's earlier arrangements with France, secured for the United Kingdom a virtual preference in the French market *vis-à-vis* Belgium. That the loss of such a virtual preference might be serious cannot be denied.

Fundamentally, of course, it is a matter of an adjustment of the Anglo-Belgian rate of exchange, which will no doubt come in time. It may also be a matter of the precariousness of the over-all balance on the United Kingdom trading account and the necessity for finding more secure markets and for providing a margin of safety.

To some extent the loss of markets could be avoided if the United Kingdom were more forceful in her trade negotiations with France, who would after all be in some danger in her turn of losing to the Belgians part of the privileged position which she occupies in sterling-area markets.

The fact that if exports decline monetary reserves will suffer is inherent in a regime of convertibility. To face this danger an adequate margin is necessary. One hopes that such a margin would be provided once it became clear that there was great benefit to be secured for all concerned from moving out of the strait-jacket.

It is perhaps too much to hope that a Payments Agreement of the kind here suggested would be acceptable without any safeguards. It might be necessary, and possibly desirable, at any rate during an initial trial run, to fix certain "ceilings", which would not in any way affect the operation of the Scheme except in the event of one of the limits coming into sight. For example, a ceiling might be fixed to the credit balance that Belgium could accumulate in a given period—the limit being introduced to meet either Belgium's fear of selling

an excessive quantity of goods too cheap or the United Kingdom's fear of losing too much trade to Belgium.¹ If, on the other hand, excessive results took the form of an undue stimulus to trade all round rather than of a diversion of trade in particular directions, the proper remedy would, for the subsequent settlement period, be a reduction of the European Discount.

The other main consideration which may have been in the minds of the British representatives at the discussions about the Payments Agreement for 1949-50 is the effect, quite apart from any loss of export trade with Europe, of radical modification of the basis of Marshall Aid on the net amount of Marshall Aid dollars allocated to the United Kingdom. On the original concept of Marshall Aid, allocations to individual countries were based mainly on their dollar deficits. In the case of the United Kingdom, it was natural to accept the dollar deficit of the whole sterling area as the basis, even though it was only the United Kingdom itself which was properly the object of Marshall Aid. The introduction of the distinction between "basic" and "conditional" aid tends towards the over-all balance of payments deficit displacing the dollar deficit as the central factor. With an over-all balance of approximately zero, the United Kingdom's claim for dollars then has to be made up of the over-all balance of payments deficit of the rest of the sterling area (including its substantial deficit with the United Kingdom) and of the net contribution made by the sterling area (including the United Kingdom) towards the other European participants in the Scheme. The change is purely one of book-keeping and makes no difference to the final result of the calculation, but it does throw into awkward prominence the question of the relationship between the European Recovery Programme and the economic needs and policies of the non-European sterling-area countries. It would, however, clearly be wrong for considerations of this kind to affect the issue.

So far in this Section we have been assuming that a favourable balance with the other participants will, in so far as it affects at all the amount of dollar aid received by a country, affect it to the extent of one hundred per cent.² But under the Scheme put forward in this article, the dollar benefit to a country of a given favourable

¹ A general lowering of obstacles to intra-European trade would itself, if taken to serious lengths on a multilateral basis, increase Belgium's favourable balance with the other participants, because Belgium is no longer left with heavy restrictions on imports which she can remove. A multilateral arrangement of this kind could be carried much further if Belgium were excluded. It is, on the other hand, possible, and indeed desirable, that Belgium's participation in the Scheme would involve her tightening up restrictions on imports of dollar goods, thus improving the Belgian market for European and sterling-area goods. (Belgium's favourable balance with other participants would probably increase under the Scheme, but perhaps not sufficiently to maintain its dollar value.) The strain involved on the Scheme by Belgium's participation would be considerably lessened if this were the result.

² Either because part of the Marshall Aid dollar allocation is "conditional" on the amount of this favourable balance or because any deviation between the amount of the actual balance itself and of the drawing rights extended by the country will be reflected in the amount of gold payable under its Payments Agreements with other participants.

balance with the other participants would be reduced by the amount of the European Discount. This, on the face of it, would form the basis of a further British objection, since the United Kingdom would derive less advantage from the sterling area's favourable balance with Europe. That there would be some force in this objection cannot be denied. The Scheme after all is designed to render it easier for intra-European debtors to meet the strain caused by the existence of intra-European creditors. Any sacrifice involved to the United Kingdom could no doubt be taken somewhat into account in allocating the Marshall Aid dollars.¹ But it must be borne in mind that any apparent disadvantage in terms of dollars to a country like the United Kingdom would be balanced by an equal advantage to a country like France. It would be the business of the United Kingdom to ensure that France did not employ any extra dollars in increasing her dollar imports, but used them to increase her adverse balance with the sterling area, which might then, at the expense of a larger volume of excess exports, maintain its dollar position.²

It might, not unreasonably, be asked why I am so apt to stress the desirability of bilateral trade negotiations when the whole purpose of this Scheme is to achieve a multilateral regime throughout Europe and the sterling area. The answer is that the object essentially is to get rid of all *monetary* obstacles to multilateral trade rather than to deny the usefulness, under present circumstances, of reciprocal trade arrangements. The negotiation of such reciprocal arrangements is confronted with an irrelevant obstacle so long as payments arrangements are bilateral. Under a system of multilateral clearing, the trading arrangements can be contrived to the best advantage. To achieve it is worth considerable concessions. This was presumably in mind when, under Article 4 of the Convention for European Economic Co-operation of 16th April, 1948, the Contracting Parties undertook to "continue the efforts already initiated to achieve as soon as possible a multilateral system of payments among themselves". And the Chancellor of the Exchequer has said: "No country stands to gain more from convertibility of currencies than Britain, whose past viability and prosperity was dependent on its ability to offset its surpluses in trade with some areas against its deficits with others".³

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¹ Alternatively, the expedient suggested at the end of footnote 2 on p. 296 could with advantage be adopted.

² Cf. the similar suggestion put forward for the case of Belgium under (b) of Section IV of the text.

³ Speech to the National Press Club, Washington, 9th September, 1949. Relevant also is the somewhat curious statement made in the Tripartite Washington Communiqué of 12th September that "one of the ways in which the competitive position of United Kingdom products might be improved was by a widening of the area in which such products competed freely with those of other countries".

A Geometrical Representation of Balance of Payments Policy

By J. E. MEADE

IN my paper on "National Income, National Expenditure and the Balance of Payments" in the *Economic Journal* for December, 1948, and March, 1949, I attempted to show algebraically certain "multiplier" relationships between Income, Expenditure, Imports and Exports on the assumption that all prices were constant. In this paper¹ I intend to use the geometric technique to introduce certain changes in price relationships into the general structure used in my *Economic Journal* paper. But this technique will be used in this paper for the sole and limited purpose of comparing Exchange Rate variation and Commercial Policy (e.g., Import Restrictions or Export Subsidies) as a means of removing an existing balance of payments disequilibrium between two countries both of which, in the terminology of my *Economic Journal* paper, are adopting policies for Internal Balance.

We assume (i) that there are only two countries A and B, of which one may, of course, represent the rest of the world; (ii) that A produces only one product which we will call Wheat, and B only one product which we will call Machinery or, more realistically, that the prices of A's various products do not vary in relation to each other so that we can think unambiguously of a representative A product, and similarly with B; (iii) that both A and B adopt domestic fiscal or monetary policies for the maintenance of what I have called Internal Balance or, in other words, that the authorities in each country take steps to cause such an inflation or deflation of its Domestic Expenditure (i.e., of its total money expenditure on goods and services for final use at home, whether these be home-produced or imported products) as to maintain constant the total demand for its own product and so for its own labour; (iv) that the money wage-rate and so (with constant employment and output) the money price of the product of each country in terms of the currency of that country is constant; and (v) that imports of Wheat from A into B and of Machinery from B into A are the only elements in the balance of payments except where the contrary is expressly stated.

We have left room in the above assumptions for two important types of price change. First, we do not assume a constant rate of exchange between A's money which we will call dollars and B's money which we will call pounds. The pound price of B's Machinery and the dollar price of A's Wheat are fixed (see assumption iv); but as

¹ This paper, like my *Economic Journal* paper, was written as a by-product of work which I am doing under the auspices of the Royal Institute of International Affairs on "The Theory of International Economic Policy".

the pound may depreciate in terms of dollars, so a unit of B's Machinery may exchange for a smaller amount of A's Wheat than before. Secondly, we do not assume Free Trade or an unchanged Commercial Policy. The price of A's Wheat may rise in pounds and so in terms of B's Machinery in B's market without rising in A's market, because B imposes an import duty on Wheat.

Let us start off then with Free Trade but a rate of exchange between the pound and the dollar which leaves B with a deficit on her balance of trade. This position is depicted in Figure I. Let BO measure the amount of Machinery produced by country B, and since the pound price of Machinery is given it can also measure the value in B's currency of B's National Income. But B's Domestic Expenditure (i.e., the amount of purchasing power which she has available to spend at home for domestic purposes on goods and services of all kinds whether home-produced or imported) is equal to her National Income + her Imports — her Exports. So if B has a deficit of OR in her balance of trade, her total Domestic Expenditure will be equal to BR . Let the slope of the line α represent the £-\$ rate of exchange (or the real terms of trade between Machinery and Wheat). Country B has her National Income (BO) plus her "Marshall Aid" (OR) to spend on home-produced or imported goods and services at a market price corresponding to the slope of α . She moves from R up this price line to the point Q_{ma} where this price line is a tangent to her highest indifference curve (I_b). At this point B is in equilibrium. She consumes BC of her own Machinery and uses CR of her Domestic Expenditure to purchase CQ_{ma} of A's Wheat.

Similarly, country A has a dollar National Income (or Wheat National Product) equal to AO . But of this OR' is used to finance a balance of trade surplus ("Marshall Aid") so that her own Domestic Expenditure is AR' . On the price line α she uses $R'G$ of her Domestic Expenditure to consume GQ_{ma} imported Machinery, because Q_{ma} is also the point at which the price line α is a tangent to A's highest indifference curve (I_a). Q_{ma} is our initial point of balance of payments disequilibrium, which becomes a position of equilibrium through the payment of "Marshall Aid" on a scale exactly equal to B's balance of payments deficit at the given rate of exchange.

Let us now suppose that the balance of trade deficit is removed. Country B's Domestic Expenditure in terms of her own money or products must now be confined to her National Income BO . The foreign exchange value of the pound is altered (in Figure I we have shown it as depreciated) to the slope of the price line β . From O country B moves up this price line until it is a tangent to her highest indifference curve I'_b at Q_{ed} , where she uses DO of her Domestic Expenditure to spend on DQ_{ed} of imported Wheat and consumes the remainder (BD) in terms of her own product. Similarly, country A now starts with a Domestic Expenditure of AO ; she moves from O up the price line β to the point of tangency with her highest indifference

curve I'_a at the same point Q_{ed} , where she uses OF of her Domestic Expenditure in consuming FQ_{ed} imported Machinery and consumes the remainder (FA) in the form of her own product Wheat. Q_{ed} is the point of equilibrium obtained by exchange depreciation. It is to be observed that both Q_{ma} and Q_{ed} lie on the contract curve K-K which is the locus of the points at which an A indifference curve is tangential to a B indifference curve.

The movement from Q_{ma} to Q_{ed} may be regarded as taking place in two parts. Since B is going to lose an excess of imports over exports of OR, she must take steps to deflate her Domestic Expenditure by this amount in order to keep her demand for goods and services in line with the reduced supplies which will be available when she has sufficiently increased her exports and reduced her imports. Conversely, A must inflate her Domestic Expenditure by OR' to take up the excess supply of goods on her domestic market which will be available when she is no longer exporting more than she is importing. But this deflation of Domestic Expenditure in B and inflation in A will certainly decrease B's demand for imports and increase A's demand for imports, if the marginal propensity to import in both countries is greater than zero. Why should any depreciation of B's currency be necessary?¹ Why should not these expenditure effects alone be sufficient to restore equilibrium? If they are sufficient, then the point Q_{ed} in Figure I will coincide with the point H at which the price line α' (which is parallel to the price line α but passes through O instead of R and R') cuts the contract curve K-K. It is clear from Figure I that an Exchange Depreciation will be required as well as the expenditure effect only if as we move North-West up the contract curve the slopes of the successive points of tangency between A and B indifference curves do not remain constant but become steeper and steeper. If the slope of the tangent to the A and B indifference curves at H were equal to the slope of the tangent at Q_{ma} (i.e., to the price line α) then the price line α' would at H describe the new position of equilibrium since it has the same slope as α . Only if the price line α' is less steeply sloped than the tangent to the indifference curves at H must we move up towards the price line β at the point Q_{ed} in order to reach equilibrium.

What does this mean? In the terminology of my *Economic Journal* paper it means that the sum of A's and B's marginal propensities to import must be less than unity. This is shown in Figure II. Country

¹ We are carrying out the whole analysis of this paper in terms of a system of Variable Exchange Rates. We could do it just as well in terms of Variable Wage Rates (i.e., the Gold Standard). In this latter case a deflation of B's and inflation of A's Domestic Expenditure would take place because without Marshall Aid B would lose Gold to A. This deflation in B and inflation in A would cause B to purchase less of A's goods and less of B's goods and A to purchase more of A's goods and more of B's goods. Why should not these income effects just cancel each other out? Why should there be a *net* decline in the demand for B's goods and increase in the demand for A's? Only in this latter case will it be necessary for there to be a fall in prices and money wage rates in B and rise in money prices and wage rates in A (and so a movement of the real terms of trade against B) in order fully to remove the deficit on B's balance of trade.

B's Domestic Expenditure goes down by an amount equal to OR or MQ_{ma} . Let us suppose that with prices unchanged (i.e., a' parallel to a) B's marginal propensity to import is equal to $\frac{ML}{MQ_{ma}}$, so that of the

decrease in her Domestic Expenditure LQ_{ma} represents a decrease in her demand for her own Machinery and NL (with a Machine value of ML) a decrease in her demand for imported Wheat. This means that one of B's indifference curves must be tangential to the price line a' at the point N. Now MQ_{ma} also measures, in terms of B's currency, the increase in A's Domestic Expenditure. If the sum of A's and B's marginal propensities to import is less than unity, then, at unchanged prices, A must spend on imports a proportion of her increase in Domestic Expenditure which is less than $\frac{LQ_{ma}}{MQ_{ma}}$. Suppose

that A's marginal propensity to import is only $\frac{JQ_{ma}}{MQ_{ma}}$ (i.e., $\frac{ML}{MQ_{ma}} + \frac{JQ_{ma}}{MQ_{ma}} < 1$), so that she spends only JQ_{ma} more on Machinery

and PJ (with a Machine value of MJ) more on her own Wheat. Then there must be an A indifference curve tangential to a' at P. It is clear from the shape of the indifference curves at P and N (i) that there must be a point H on the price line a' between P and N at which an A indifference curve is tangential to a B indifference curve, and (ii) that the slope of the tangent to the two indifference curves at this point H must be steeper than the slope of a' , i.e., than the slope of a which is equal to the slope of the tangent to the A and B indifference curves at Q_{ma} . If we start from the point Q_{ma} , by taking successively larger changes in the Domestic Expenditure of each country we can trace out the loci of the points N and P which we will call respectively B's expenditure curve (E_b) and A's expenditure curve (E_a). It is clear from Figure II that as we move North-West from Q_{ma} along the contract curve K-K, E_b will lie to the East of us and E_a to the West. This is the fundamental proposition which arises from the assumption that the sum of the two marginal propensities to import is less than unity.

There is a second fundamental geometric proposition which we must establish before we proceed. This arises from the familiar assumption that the sum of A's and B's price elasticities of demand for imports is greater than unity. It is illustrated in Figure III. Let us start from the point Q_{ea} where the balance of trade between A and B has been brought into equilibrium by means of exchange depreciation to a price line β . Suppose now that the exchange rate were appreciated again to a' . How much of each commodity would each country purchase, assuming that each country's Domestic Expenditure were kept equal to its National Income (i.e., BO for B and AO for A)? This is, of course, shown by each country's familiar offer curve.

When the price of imports falls for B from β to α' we assume that B purchases some more of A's products (i.e., her elasticity of demand is greater than zero and her consumption combination on the line α' would lie North-East of N' .) If her elasticity of demand for A's products were greater than unity she would not only consume more of A's products but would also give up a larger amount of her own in return, so that her new consumption combination would lie on α' at some point North-East of P'. In other words, B's offer curve (O_b) will run from Q_{ed} to cut α' at a point N somewhere North-East of N' and at this point a B indifference curve will be tangential to α' . Similarly, A's offer curve will run from Q_{ed} to cut α' at a point P somewhere South-West of P', and at this point an A indifference curve will be tangential to α' .

It is a familiar proposition, which we shall not prove here, that if the sum of A's and B's elasticities of demand for imports is greater than unity, then N will lie to the North-East of P, and a fall in the price of A's product from the equilibrium point Q_{ed} will generate an excess demand for A's product or money (DN demanded by B and PC by A) and a deficient demand for B's (BD demanded by B and CA by A). In Figure III both A's and B's demands have been depicted as having an elasticity less than unity; but their sum is greater than unity and N lies to the North-East of P. Now it can be seen from the shape of the indifference curves at P and N that there will be a point H on α' in between P and N at which an A indifference curve will be tangential to a B indifference curve. In other words, the contract curve K-K will run from Q_{ed} Southwards with O_a to the West and O_b to the East of it.

In Figures IV (a) and (b) the two expenditure curves (E_a and E_b) and the two offer curves (O_a and O_b) have been drawn on a single diagram, the only material difference between these two Figures being that in IV (a) the elasticity of demand for imports for each country is greater than, and in IV (b) is less than, unity. It should be observed that each country's expenditure curve will cut the price line α' at the same point as its own offer curve. This is so because both the expenditure curve and the offer curve must cut the price line α' at the point at which the price line α' is a tangent to one of that country's indifference curves, as can be seen from Figures II and III. Take, for example, the point Q_{isa} where B's offer curve and expenditure curve cut the price line α' . Starting from Q_{ma} and moving up B's expenditure curve (E_b) as B's Domestic Expenditure declines from BR to BO, we move to the consumption point Q_{isa} at which α' is a tangent to the highest possible B indifference curve. Or starting from Q_{ed} on the price line β and allowing the price of B's imports to fall towards α' with a constant Domestic Expenditure in B of BO, we move along B's offer curve O_b ; and the point Q_{isa} on this offer curve also describes the point at which the new price line α' is tangential to the highest possible B indifference curve.

We are now in a position to consider Commercial Policy as a means of restoring equilibrium to the balance of trade between A and B. We start from the Marshall Aid point Q_{mn} , the point of intersection of the two expenditure curves (E_a and E_b). We have shown that Q_{ed} , the point of intersection of the two offer curves, will describe the equilibrium as obtained by Exchange Depreciation. We now propose to show that Q_{itb} , the point of intersection of A's offer curve and her expenditure curve, describes the equilibrium obtained by an Import Tax in the deficit country B; that Q_{esa} , the point of intersection of B's offer and expenditure curves, describes the new equilibrium obtained by an Import Subsidy in the surplus country A; that the point of intersection (if any) of B's expenditure curve and A's offer curve (Q_{esb} in Figure IV (a) and Q_{etb} in Figure IV (b)) will describe the equilibrium (if any) brought about by an Export Subsidy (Q_{esb}) or Tax (Q_{etb}) imposed by B; and that the point of intersection (if any) of A's expenditure curve and B's offer curve (Q_{eta} in Figure IV (a) and Q_{esa} in Figure IV (b)) will describe the equilibrium (if any) brought about by A's taxing (Q_{eta}) or subsidising (Q_{esa}) her exports.

Let us consider first the point Q_{itb} which describes how country B can get rid of the deficit on her balance of trade without depreciating her currency but by imposing a tax on imports. This is shown in more detail in Figure V. After the balance of trade disequilibrium has been removed A's Domestic Expenditure will rise from AR' to AO. But since B's prices are unchanged and the rate of exchange is unaltered A will now move up the price line a' from O until she reaches the point Q_{itb} at which one of her indifference curves is a tangent to a' , which point is, of course, where both her expenditure curve and her offer curve cut the line a' . This then determines the amount of Machinery which A will import from B and the amount of Wheat which she will offer in return. But how is B to be induced to demand just this amount of Wheat? Through the point Q_{itb} there is a B indifference curve, the slope of which is steeper than the slope of the A indifference curve and so of the price line a' , because Q_{itb} lies to the West of K-K. Draw the price line γ through Q_{itb} tangential to the B indifference curve at Q_{itb} and let it cut B's Machinery axis at S. Then OS will represent in terms of Machinery or pounds the amount of revenue raised in B on imports of Wheat into B, and γ will be the price line which represents the price of Wheat in B cum import duty while a' represents its price ex import duty.

B now has a total Domestic Expenditure at Factor Cost of BO but a total Domestic Expenditure at Market Price of BS. In other words, she has available to spend on goods and services at their Market Price (including duty) not only her National Income at Factor Cost (BO) but also the total revenue from the Import Duties (OS). Let us suppose that the government which receives this revenue distributes

it out as a *pro rata* subsidy to everyone's income in B.¹ Then consumers in B have BS to spend on home produced-goods or on imports at a market price corresponding to γ . They move up the price line γ from S till they reach their highest indifference curve at Q_{itb} . Thus they consume BC of their own Machinery and CQ_{itb} of imported Wheat. For this Wheat they pay CO to obtain the necessary dollars to give to suppliers in A and OS in import duty, which is then paid back by their government to them to subsidise their incomes.

If the point Q_{itb} is compared with the point Q_{edb} , it can be seen that for A exchange depreciation will always be better than import restriction by B, since Q_{ed} and Q_{itb} both lie on A's offer curve and β is a better price than α' for A. The point Q_{itb} may be better for B than the point Q_{ed} . This is bound to be so if A's demand for imports has an elasticity less than unity; for in this case Q_{itb} will lie both South and East of Q_{ed} , so that B will get more Machinery and more Wheat than at Q_{ed} . But if A's elasticity of demand for imports is greater than unity Q_{itb} will lie South and West of Q_{ed} . B will have more Machinery but less Wheat than at Q_{ed} . In Figure V B's indifference curve which passes through Q_{ed} is shown as I_b . It cuts the price line α' at D. If A's demand is so elastic that Q_{itb} lies to the West of D then B as well as A would be better off at Q_{ed} than at Q_{itb} .²

Figure VI shows how an Import Subsidy in the surplus country A would close the balance of trade gap. Country B now has a Domestic Expenditure just equal to its National Income, BO; for it has now no "Marshall Aid" (i.e., no excess of imports) nor any revenue from imports to supplement its National Income. Since A's prices and the rate of exchange are unchanged, B moves up the price line α' from O until it reaches Q_{isa} which is the point on its expenditure and offer curves. But through Q_{isa} there is an A indifference curve which, since Q_{isa} lies East of K-K, has a steeper slope than α' . Draw the price line γ through Q_{isa} tangential to A's indifference curve at that point. Then A has a National Income at Factor Cost of AO from which must be deducted the proportionate income tax OT which she levies to pay the subsidy on her imports of Machinery. Her consumers have then the limited purchasing power AT to spend, but enjoy the very favourable subsidised price for imports corresponding to the line γ . They move up this line γ from T till they also reach

¹ This method of dealing with the Import Duty revenue is quite realistic. A government which was already raising revenue (e.g., by proportionate income tax) to cover its governmental expenditure could use the revenue which accrued from an import duty whose primary purpose was to remove a deficit on the balance of trade merely to replace other revenue (e.g., for the reduction of its proportionate income tax). By this means we can allow B's indifference map itself to determine how much of the revenue from the import tax is spent on B's Machinery and how much on A's Wheat. Lerner in his Article on "The Symmetry between Import and Export Taxes" in *Economica* for 1936 has shown the crucial importance of determining this point.

² Q_{itb} , like all the "Commercial Policy" points but unlike Q_{ma} and Q_{ed} , both of which are on the contract curve, is in any case an "inefficient" solution in the sense that another solution (e.g., a combination of "Marshall Aid" and Exchange Depreciation) could be found at a point on the contract curve at which both A and B were better off than at Q_{itb} .

the point Q_{isa} at which the line γ is tangential to the highest possible A indifference curve. For the imports of Machinery CQ_{isa} , consumers in A pay TC in the subsidised price and the government of A pays OT in subsidy on its imports, so that the suppliers in B get OC.

Now if one compares Q_{isa} with Q_{eda} it is clear that B is better off at Q_{isa} since both points are on her offer curve (O_b) but Q_{isa} is at the more favourable price. A is, however, invariably worse off at Q_{isa} than at Q_{eda} , since Q_{eda} which lies on β must be to the South-East of A's indifference curve I_a which passes through Q_{eda} and is a tangent to β ; and a' is always South-East of β .

Let us turn now to the possibility that country B should remove the deficit on her balance of trade by subsidising or taxing her exports. It is clear that if A's demand for imports is sufficiently elastic an export subsidy by B without any change in the rate of exchange should remove B's deficit because the consequential reduction in the price of B's products in A's market will increase the value of A's expenditure on B's products. Simultaneously, the raising of the tax revenue in B to finance the subsidy will cause consumers in B to cut down their purchases of imports (as well as of home-produced products) and this will also help to close the gap in the balance of trade.

This outcome is illustrated in Figure VII. The new position of equilibrium will be at Q_{esh} where A's offer curve cuts B's expenditure curve. The proof of this is as follows. Through Q_{esh} draw the price line a' which is tangential to the B indifference curve passing through Q_{esh} and let this line cut BO at U. Now BO is B's National Income; and OU represents the amount of this income which is raised by the government of B in a proportionate income tax to finance the export subsidy. Consumers in B have BU to spend and they can buy imports at the old rate of exchange (slope of $a' =$ slope of a because both Q_{ma} and Q_{esh} lie on E_b). They proceed from U up the price line a' to their highest indifference curve at Q_{esh} . Now through Q_{esh} there passes also an A indifference curve the tangent to which (the line γ) passes through the origin O because Q_{esh} lies on A's offer curve (O_a). The price line γ represents the amount of B's Machinery which A can obtain per unit of her own Wheat after allowing for the subsidy by B to the price of Machinery. In exchange for CQ_{esh} of her Wheat A obtains CU of B's Machinery at the unsubsidised price of Machinery but CO at the subsidised price. And at the price of Machinery of $\frac{CQ_{esh}}{CO}$ (i.e., the slope of γ) A is also in equilibrium at Q_{esh} .

If we compare Q_{eda} with Q_{esh} A is certainly better off at Q_{esh} because both points lie on A's offer curve (O_a) but Q_{esh} is at the more favourable price (γ as compared with β). B is certainly worse off at Q_{esh} because the B indifference curve (I_b) which passes through Q_{eda} lies to the South-East of the line β whereas Q_{esh} being on γ lies to the North-West of β .

If A's demand for imports is inelastic, then an export subsidy in B cannot remove B's deficit, because the value of B's exports will fall instead of rising as their price in A's market declines. If, however, A's demand were sufficiently inelastic then an export duty in B might put B's balance of trade right, because at the higher price of imports A would spend a greater total amount on them.¹ The inelasticity of A's demand must, however, be sufficient to offset the fact that as B obtains a revenue from the export tax her consumers will be able to spend not only B's National Income but also the proceeds of the export duty, so that B's demand for A's goods at the unchanged exchange rate will rise somewhat.

This possibility is illustrated in Figure VIII where O_a cuts E_b below Q_{ma} at Q_{etb} . The proof is similar to that given in the immediately preceding case and will not be repeated here. It must serve merely to indicate what the various points signify. BO is again B's National Income; but consumers in B have available to spend not only BO but also OV, the proceeds of the export duty. This they spend at the unchanged rate of exchange (α' parallel to α) on the price line α' , settling at the point at which α' cuts E_b . Consumers in A have only their National Income OA to spend; but they must buy imports at the taxed price corresponding to the price line γ . They purchase CQ_{etb} of B's Machinery and pay for it CV' to meet the untaxed price of this amount of B's products and OV' (the Wheat value of OV) to pay the export tax in B.

Q_{etb} is clearly better than Q_{ed} for B but worse for A, since it lies both to the South and the East of Q_{ed} .

An export duty in A would remove the surplus on A's balance of trade if B's demand for A imports were sufficiently elastic (Figure IX); and an export subsidy in A would remove the surplus on A's balance of trade if B's demand for imports were sufficiently inelastic (Figure X). But it is clear from an inspection of Figures IV (a) and IV (b) that if B's demand for imports is sufficiently close to unity, O_b and E_a may never meet and no tax or subsidy on A's exports might be effective in closing the balance of trade gap.

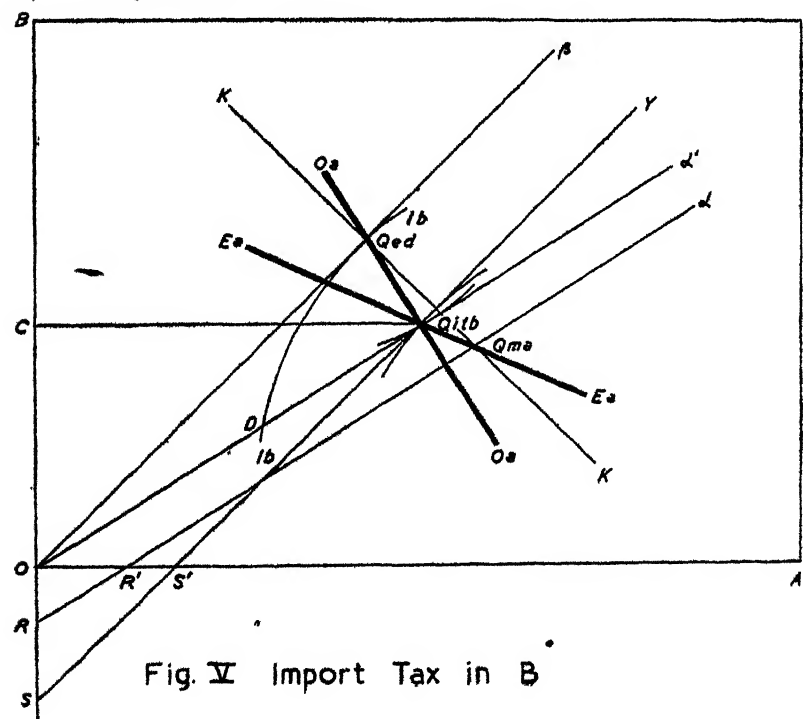
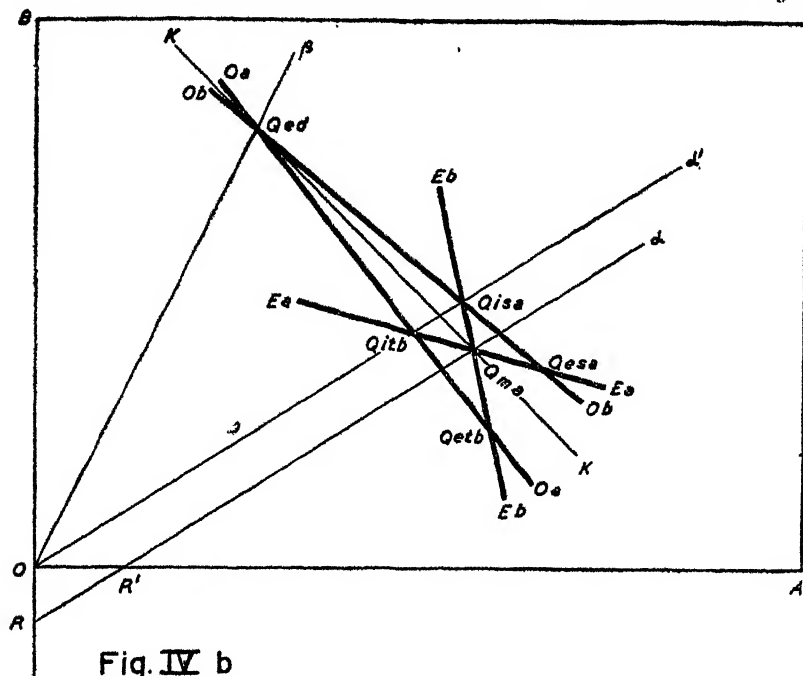
The explanation of Figures IX and X runs on lines similar to those of Figures VII and VIII. Here a very brief description must suffice.

In Figure IX country A has her National Income (AO) plus the proceeds of her export tax (OW) to spend on her own goods or on imports at the same rate of exchange (α' parallel to α). She moves from W up the price line α' to Q_{eta} which is on E_a and where she, therefore, reaches her highest indifference curve. B has simply her National Income BO to spend at a price of imports which, including the export duty in A, corresponds to γ . For the amount of Wheat

¹ It is quite possible that no solution to the balance of trade problem is possible by means of any subsidy or tax on B's exports. An inspection of Figures IV (a) and (b) will show that if A's elasticity of demand for imports is about unity, O_a may never cut E_b . This is particularly likely if, as it is often drawn, O_a curves back towards O below Q_{etb} and towards the axis BO above Q_{ed} .

CQ_{eta} , B pays an untaxed price of CW' plus a tax of $W'O$. For B Q_{eta} is worse than Q_{ed} , because both points lie on B's offer curve with Q_{eta} at the less favourable price. In Figure IX Q_{eta} is better than Q_{ed} for A because it lies on a higher A indifference curve. But this outcome is not absolutely necessary. Inspection of Figure IV (a) suggests that if B's elasticity of demand for imports became sufficiently large as B's imports diminished (i.e., O_b moved sufficiently rapidly Southwards as one moved from Q_{ed} Westwards along O_b) and if A's marginal propensity to import were sufficiently small (i.e., E_a rose sufficiently slowly Northwards as one moved Westwards along E_a from Q_{ma}) the point Q_{eta} might lie on a lower A indifference curve than the point Q_{ed} .

In Figure X country A pays an Export Subsidy. Her consumers have, therefore, only her National Income less the revenue which has to be raised to finance the Export Subsidy (i.e., AO minus $OX' = X'A$) to spend on her own or imported products. She starts from X' and moves along the price line a' to the point (Q_{esa}) where a' cuts E_a , since the price ratio for her has not changed (i.e., a' parallel to a). B has neither more nor less than her National Income BO to spend, and she can dispose of it along the price line γ which corresponds to the subsidised price of A's exports. She moves along γ until this line cuts her offer curve at Q_{esa} . She purchases CQ_{esa} of A's exports and pays for them a net price of CO , made up of an unsubsidised price of CX less the subsidy of OX in terms of her own currency (OX' in terms of A's currency). The point Q_{esa} must be South and East of Q_{ed} because, since B's demand must be inelastic, O_b slopes South East from Q_{ed} . Q_{esa} must, therefore, be better than Q_{ed} for B and worse than Q_{ed} for A.



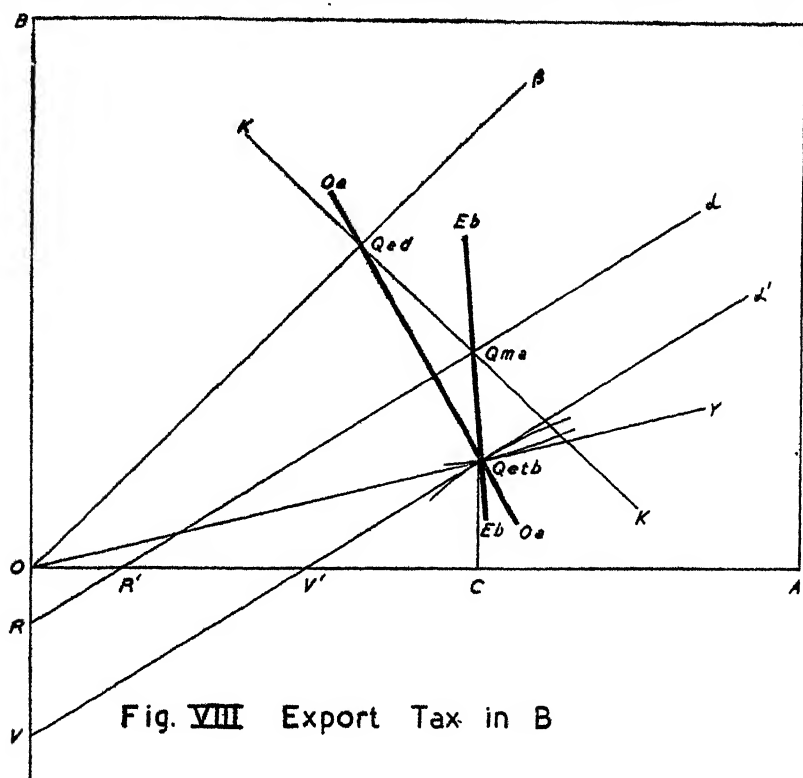


Fig. VIII Export Tax in B

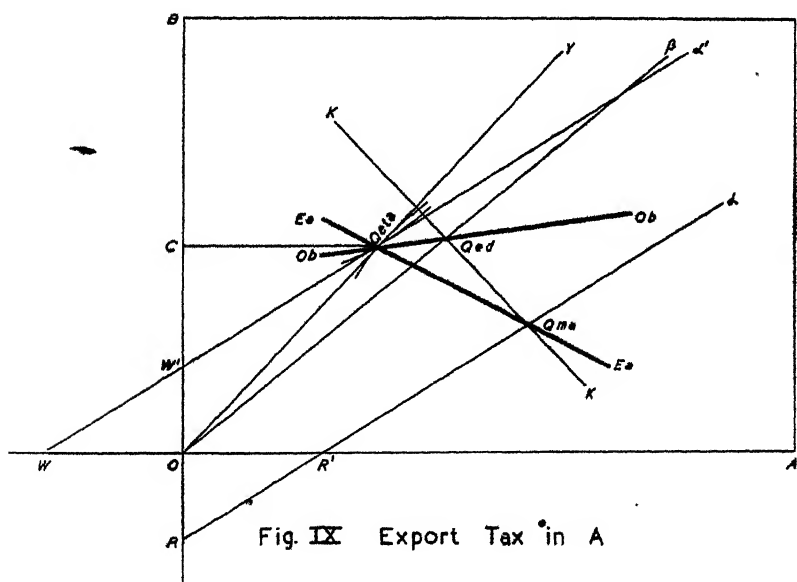


Fig. IX Export Tax in A

Investment in a Monetary Economy

By J. S. G. WILSON

I

INVESTMENT is a term used very loosely in the economic literature and all too frequently without any attempt at definition. Yet it is possible to defend an attitude which refuses to regard precise definition as an end in itself. The businessman, for example, rightly regards "investment" not as a logical category with strictly definable limits, but as a rough description of a type of activity. To the businessman and to the economist, it is the *purpose* of any particular expenditure which matters. And, indeed, if we take a representative sample of definitions of investment, they all have this in common. Fraser, for instance, defines investment in a money economy—which is the sort of economy we are concerned with—as "the use of *monetary* resources for the acquisition of wealth of a relatively illiquid type"¹ and Keynes obviously had a similar definition in mind when he divided current output into "(a) the flow of liquid goods and services which are in a form available for immediate consumption and (b) the net flow of increments (after allowing for wastage) to capital goods and loan capital . . . which are not in a form available for consumption".² But what are goods of "a relatively illiquid type"? What is "capital"? Must we not define "capital" before we can define "investment" and as a condition of defining investment?

It is no part of our present purpose to embark upon a re-examination of the basic concepts of capital theory. That ground has already received its fair share of attention, though with no very definite results. Since there is still no general agreement as to what classes of goods should be regarded as "capital", it is fruitless to define "gross investment" as all expenditure on the provision or replacement of those classes of goods. It is much better to consider the purpose for which a good is used than the physical form in which it happens to appear. In this paper, therefore, the emphasis will be on the *purpose* of an expenditure. If goods are used in the production of further goods, that is "investment". In other words, investment is "the act of applying a unit of input in any process of production".³

¹ L. M. Fraser: *Economic Thought and Language* (London, 1937), p. 341. Italics in original.

² *A Treatise on Money*, Vol. I (London, 1930), p. 127. There are dangers here in speaking of the "net flow of increments" and many economists are happier with a concept of "gross investment"—see F. A. Hayek, "The Maintenance of Capital", *Economica*, August, 1935. In general, the difficulties involved in connection with the "maintenance of capital" concept are inherent in any dynamic society. It is because society is subject to constant change and because conditions vary so greatly over time that it is so difficult to conceive of replacement of capital goods by goods which are even approximately similar.

³ F. A. Hayek: *The Pure Theory of Capital* (London, 1941), p. 66.

However, for purposes of clarity, we must also distinguish between real investment and financial investment. If we buy shares in a corporate enterprise, or government securities, or lend money against a mortgage, or fix money at a bank in the form of a time deposit, we make a financial investment. If, on the other hand, we build a house or a factory, we make a real investment. As a rule, such real investments are measured in money terms and financial investment is undertaken with the object of making a real investment, but it is possible to conceive of one without the other. If a man applies his own labour to the resources of nature for the purpose of building a house, real investment would be the result, but, since no money was involved for labour and materials, this real investment would not be matched by any financial investment. Conversely, it is possible to invest money in a financial sense (e.g., by "investing" money at interest as a time deposit in a bank) without any corresponding real investment being undertaken. Normally, of course, a bank functions in some sense as an intermediary and lends corresponding amounts of money (or money claims) to entrepreneurs for the purpose of undertaking real investment and this may then be regarded as the counterpart of the financial investment undertaken by the depositor. In times of cyclical depression, however, we have sometimes witnessed a tendency for interest-bearing deposits to rise, while bank advances have been falling. In this case, the difference between the real investment and financial investment magnitudes flows into hoards—i.e., money has been withdrawn from current expenditure on consumption without being applied to the production of future goods. As a result, there is a building up of inactive money holdings, with important repercussions on the level of real investment. So that, although there may not always be a matching of money flows with flows of real resources, in general there is a most intimate connection between them. Indeed, it is the money flows which, in a sense, both activate and determine the direction of flow of real resources.

For another reason, too, considerable importance is to be attached to the relationship between flows of money and flows of real resources. We are interested, for example, in the amount and nature of investment expenditures, because they determine in what proportions different kinds of goods will come into existence. Furthermore, we are interested in "how these proportions between quantities of different kinds of goods are related to the proportions in which money expenditure will be distributed between the two kinds of goods [producers' goods and consumers' goods], because it depends on the relation between these two proportions whether the production of either kind of good will become more or less profitable . . . we must always compare the result of investment embodied in concrete goods with the money expenditure on these goods".¹

¹ F. A. Hayek: *The Pure Theory of Capital* (London, 1941), p. 394*ii*.

This brings us to the central problem which it is the purpose of this paper to discuss. What is the nature of the relationship between financial investment and real investment? Keynes tried to state it as follows: "The schedule of the marginal efficiency of capital may be said to govern the terms on which loanable funds are demanded for the purpose of new investment; whilst the rate of interest governs the terms on which funds are being currently supplied".¹ While one would agree with D. H. Robertson² that the wording of this assertion is perhaps unfortunate and somewhat ambiguous, yet in epigrammatic form it does distil into a single sentence the attitudes of individual businessmen. Then, in an even more significant sentence, Keynes went on to point out that "whilst there are forces causing the rate of investment to rise or fall so as to keep the marginal efficiency of capital equal to the rate of interest, yet the marginal efficiency of capital is, in itself, a different thing from the ruling rate of interest".³ It is important, in other words, to distinguish between the real and the monetary phenomenon, between a rate of interest which is the price paid for loans of money and a real rate of return, or a "rate of profit".⁴ But it is also important to consider the forces which operate to bring about this tendency for the marginal efficiency of capital (or "expected rate of profit") to equal the rate of interest. To this task we must now turn.

II

In equilibrium, the marginal rate of return on an investment should equal the rate of interest, or the price paid for the use of money, and both must equal the return (in terms of convenience) to holders of money. The conditions of this equilibrium are not far to seek, but there seems to have been little study of the underlying processes. With this end in view, it is proposed, first, to analyse these processes on the basis of drastically simplifying assumptions and, second, to remove some of these assumptions, in order to establish the degree to which the complications of the real world might modify or obscure the processes in question.

For the purpose of reducing the problem to fundamentals, it is proposed to assume:—

(1) rational behaviour on the part of businessmen, such that they will, in fact, aim at maximising their profits and will endeavour to push investment to its furthest profitable limits;⁵

(2) perfect foresight, so that there is an absence of uncertainty and an ability to plan future production on the basis of known data;

¹ *General Theory of Employment, Interest and Money* (London, 1936), p. 165.

² See *Essays in Monetary Theory* (London, 1940), p. 11.

³ *Loc. cit.*

⁴ See F. A. Hayek: *The Pure Theory of Capital* (London, 1941), p. 354.

⁵ This assumption, or an approximation to it, will be retained throughout.

(3) a constant demand for money to hold,¹ which will enable us to concentrate our attention on that part of the total demand for loanable funds which is matched by real investment ;

(4) that investment is interest-elastic ;

(5) perfect shiftability of funds from one market to another, which implies the absence of any costs of shifting ;

(6) a single rate of interest ; and

(7) perfect mobility of resources other than money.

It may be felt at this stage that we have assumed away all our problems, but this is not our intention. There is a fundamental underlying process to be isolated. Only when that has been pinpointed is it proper to try to accommodate the complexities of the real world.

The rate of interest, as has been stated, is regarded as a monetary phenomenon. As the price paid for the use of money, it is determined by the supply and demand conditions for money and money claims. The determination of the expected rate of profit, which is the corresponding real phenomenon, is slightly more complicated. In this connection, the businessman will compare his expected stream of cost expenditures with the stream of expenditures which he anticipates consumers will direct towards his final product (and these may well be the expenditures of other entrepreneurs when his own "final" product is to them an intermediate good). His cost expenditures should include payments for the hire of labour, the purchase of raw materials and power, an allowance to cover overheads, amortisation charges, his own "wages of management" and interest on "capital", whether borrowed or his own.² He may or may not make separate provision for interest on capital, and practice varies.³ If he does not, his "wages of management" and the interest charge will be covered by a "customary mark-up". If the goods sell at a price which covers these costs, he will make his customary profit and he has no inducement to expand or contract. If his goods will not sell at this price, he makes a loss. He may absorb this temporarily by accepting lower "wages of management", or (if the money capital invested in the business is his own) by failing to charge interest on capital. In the long run, however, and assuming rational behaviour, he must go out of business or transfer his activities elsewhere. If, of course, he finds that it is possible to increase his "customary mark-up" so that it exceeds his

¹ This implies also a constant supply of money for this purpose. With perfect foresight, this third assumption is not wholly unrealistic, since in an economy in which people were absolutely certain about the future, there would be no need to hold money beyond the comparatively small amounts required by the discontinuity of transactions and the inconvenience and cost of investing small amounts for very short periods. It is assumed that this magnitude would be interest-inelastic and that we can safely ignore at this stage those changes in the demand for money to hold which might be induced by income changes.

² In the general case, he would also require some compensation for the risks involved, though with perfect foresight these would be non-existent.

³ "Selling costs commonly and interest on capital rarely are included in overheads ; when not so included they are allowed for in the addition for profits." Hall and Hitch : "Price Theory and Business Behaviour", *Oxford Economic Papers* (Old Series), No. 2, May, 1939, p. 19.

"wages of management" (interest charges also being covered), he (and his competitors) have every inducement to expand and will do so as long as marginal revenue continues to cover marginal costs. In so far as he requires additional finance, the costs of securing it must be covered.

Looked at from the point of view of the community as a whole, the advantages of lending at interest must tend to equal the earnings of investment in real resources. But the level at which that equality will become effective will conceivably vary.

If the rate of interest is low in relation to the expected rate of profit, there will be an incentive to increase the rate of investment. This will have two effects. On the one hand, it will mean an increased demand for money and a tendency for the rate of interest to rise. On the other, and as the rate of investment increases, the marginal cost of producing capital goods (or of securing additional labour and materials) will tend to increase and this will immediately tend to reduce the expected rate of profit. In addition, we can expect the prospective yield of capital assets to fall, because more units are coming on to the market. Then, as a result of the convergence of these two sets of forces—the one operating to push up the rate of interest and the other to depress the expected rate of profit—equality between the two rates will eventually be brought about.

Conversely, if the rate of interest is high in relation to the expected rate of profit, there will be a tendency to curtail investment and, as a result, the prospective yield of existing capital assets will gradually be raised, as these assets wear out and become shorter in supply.¹ Concurrently, the falling off in the demand for money will tend to lower the rate of interest. Again, there is a tendency towards equality between the rate of interest and the expected rate of profit in consequence of this two-way effect. Or, if one prefers, one can state the position in terms of a cross-relationship. Any change in the expected rate of profit (e.g., as a result of technological progress) will influence the rate of interest through its effect on the demand for money. Likewise, current and prospective levels of the rate of interest will in their turn influence expectations of future yields from investment.

It is convenient to consider here a qualification to the argument which appears above. Objection was taken recently to "the dogmatic assertion that the effect of investment on further investment decisions is bound to be depressing; that over time, and in the absence of unforeseen change, the marginal efficiency of capital will decline",²

¹ There is an important qualification to this. To the extent that capital assets cease to be available in the appropriate proportions for profitable employment, the prospective yields (and the value) of particular capital assets may not rise and may well fall. However, on the assumption that the community will be unwilling to allow its capital equipment to run down indefinitely, there must come a time when the business community will see the necessity for correcting these disproportionalities and investment will begin to revive. This will be encouraged by a low, or falling, rate of interest.

² L. M. Lachmann: "Investment Repercussions", *Quarterly Journal of Economics*, November, 1948, p. 699.

and it was pointed out that this could only be so where all capital goods are more or less perfect substitutes. We can agree at once that "the mode and magnitude of investment repercussions in any given situation depends on the shape of the capital structure in which the complementarity relations obtaining between all capital resources find their expression".¹ In point of fact, we are always discovering examples of new investment which "makes it possible to use certain existing capital resources *complementary to it* in a new and more profitable way".² But is this any different from the general search for new and more profitable combinations of resources? Lachmann was right to attack dogmatism, but in the final analysis presumably more and more investment must lead to a depression of returns, for eventually we reach a situation in which people lack the time to consume the abundance of goods being produced and all goods become "free". That day is still a long way off, but given *sufficient* investment activity in particular fields, it will still be possible to reach a situation of temporary and localised "full investment" and a related saturation of consumer demand for particular types of goods (with, of course, repercussions on the demand for other types of goods). That is all that it is necessary to claim for the purpose of our present argument.

III

We must now remove our simplifying assumptions and study the effects which will follow under less restricted conditions.

Two main effects would seem to follow the introduction of the factor of *uncertainty*. First, there is the increased difficulty of formulating a production plan, when for definite expectations it becomes necessary to substitute a *range* of expectations, not all of which will be held to have the same order of probability.³ In other words, it now becomes necessary to allow for a margin of error. But, despite uncertainties of future technical conditions and of the market, it is reasonable to suppose that "a firm, which is only concerned to draw the maximum profit from a given situation, . . . will have to draw up a fairly definite 'plan' to attain that end".⁴ The effect of uncertainty in these circumstances will be a desire to retain a measure of flexibility and a capacity to adjust the 'plan' from time to time. Flexibility can be secured by keeping in reserve a generalised command over goods and services which only the holding of, or access to, a money balance can provide. Secondly, then, there will be a desire to keep a money balance (or to have access to one—by means of an unexercised overdraft authority) in excess of "transactions" requirements. In other words, there will be a "speculative" demand for

¹ L. M. Lachmann: "Investment Repercussions", *Quarterly Journal of Economics*, November, 1948, pp. 699-700.

² *Ibid.*, p. 701. Italics in original.

³ Cf. Keynes: *General Theory*, p. 24 (n. 3).

⁴ J. R. Hicks: *Value and Capital* (Oxford, 1939), p. 227.

money balances.¹ This will not only swell the demand for money and loanable funds, but will also have repercussions on the level of the rate of interest. Other things being equal, this "speculative" demand for money will tend to force up the rate of interest and to require that eligible investment projects should be rather more profitable than would otherwise have been necessary. The monetary authorities (in theory) might offset this to a certain extent by adding to the supply of money. Nevertheless, the occurrence of fluctuations in the "speculative" demand for money may be extremely difficult to establish and the monetary authorities may find themselves working in the dark. In this event, the demand for money (for all purposes) will become much less predictable (here we can relax assumption 3) and not only shall we be concerned with a tendency for the expected rate of profit to equal the rate of interest at the margin, but both must now not exceed (in equilibrium) the "convenience-value" of holding idle money balances, as measured in terms of opportunities forgone. In the result, any rise in the "convenience value" of holding money will tend to force up the rate of interest and thereby to restrict the eligibility of existing investment possibilities, and conversely. If such changes were at all sharp, this could have very disturbing effects on the stability of aggregate investment expenditure and discourage the businessman from venturing into the more risky types of enterprise. In order to be tempted at all, he would now require a wider profit margin and, in effect, not merely his "wages of management" and interest on capital, but a risk premium as well.

With regard to the *interest-elasticity of investment*, only a partial relaxation of this assumption is intended. First, for reasons developed above, businessmen may be led to act "bearishly" in their investment decisions. "They will require that a capital asset must pay for itself in one to five years, although they know that the useful life of the asset is likely to be much longer than five years . . . If investment decisions are guided by discounting future returns over a very short horizon of less than five years, then interest calculations are not given a chance to be important. A discount factor computed at present interest rates cannot possibly grow to significant proportions unless the horizon of businessmen is considerably longer than five years. The engineering and other costs of investment will heavily outweigh any costs which arise from discounting an income stream at current interest rates over a five-year horizon",² though it is agreed that in certain sectors of the economy where the horizon is a long way off interest charges are likely to be more important.

¹ We make no distinction here between a "precautionary" and a "speculative" motive for holding money.

² L. R. Klein: *The Keynesian Revolution* (New York, 1947), pp. 64-65. See also M. Moonitz: "The Risk of Obsolescence and the Importance of the Rate of Interest", *Journal of Political Economy*, August, 1943, pp. 348-355. And cf. H. D. Henderson: "The Significance of the Rate of Interest", *Oxford Economic Papers* (Old Series), No. 1, October, 1938, at p. 7, "... the influence of the rate of interest on capital expenditure is far less general and all-pervasive in character than is commonly assumed in economic discussion".

The degree of importance which the businessman will attach to interest as a cost payment will depend (i) on the proportion of interest to total costs; and (ii) on the period of the investment (i.e., the length of time for which money is to be 'tied up'). It is fairly obvious that for most types of business interest payments constitute a relatively low proportion of total costs and that entrepreneurs cannot be expected to react *immediately* to even sharp increases (or reductions) in interest rates. For smaller changes, the short-term effects will be negligible. Other factors—in the determination of which interest rates admittedly have some influence—will be much more potent in forming the total situation. Of these other factors, "expectations" and "the state of confidence" are of chief importance. But both are the product of current experience and of expected future experience (particularly price experience). The structure of interest rates, as one set of prices among many, is part of this price experience and, indeed, more important than cost proportions might indicate. In other words, current and expected levels of the rate of interest have an important psychological influence, if only because the rate of interest has for so long been regarded as a "strategic" price in the economy as a whole.¹

But there are two types of capital expenditure which we must expect to be highly interest-elastic—durable consumers' goods (such as houses) and the assets of public bodies and public utilities. "These two classes of capital goods are both of very great importance; and over a period of years it is probable that they account between them for a very high proportion of our aggregate capital expenditure. If, therefore, the influence of the rate of interest were limited to these two spheres it might be a factor of great consequence; but it would be less automatic and reliable than is sometimes assumed."² To these categories we must add the relatively wide sectors in an industrialised economy in which private entrepreneurs are obliged to invest long, or not to invest at all. The "longevity" of many of these instruments of production is definitely longer than five years—cotton spinning machinery would seem to have a "life" of ten years or more; the "life" of a ship is a somewhat conventional concept, but it would appear to vary between fifteen and twenty years; while the "life" of a steel mill, in which all the most recent technological improvements have been embodied (e.g., as at Margam in Wales), may be as long as twenty to twenty-five years (an older mill, on the other hand, as a result of a continuous replacement of worn-out parts, may in point of fact have been rebuilt after fifteen years).³ In addition, it should

¹ Changes in credit conditions may not, however, be fully reflected in interest rate variations and credit rationing often has a much more direct effect in determining which firms shall be pushed into the "fringe of unsatisfied borrowers".

² H. D. Henderson, *loc. cit.*, pp. 6-7. It was also emphasised that "the decision whether or not to undertake public works expenditure of a non-commercial character will seldom, if ever, be determined solely on financial grounds".

³ For a brief statistical discussion of the "longevity" of instruments of production, see D. H. Robertson: *A Study of Industrial Fluctuation* (London School of Economics Reprint, 1948), pp. 36-45.

be remembered that it is in the expanding industries that investments are likely to be heavy and long-term, and interest costs must be distinctly relevant.

Second, our assumption of the interest elasticity of investment must be qualified to allow for an "income effect". Emphasis on this aspect of the problem was perhaps Keynes' most important contribution to interest theory.¹ The underlying assumption is the existence of unemployed resources—i.e., elastic factor supplies. It is further assumed that the primary source of loanable funds is saving and that the latter is in some degree interest-elastic.² Nevertheless, there will also be an increase in money flows, fed into the economy by the banking system. These will generally precede the growth in income and be a condition of such growth (i.e., an increased flow of money will be necessary to reactivate idle resources and to provide the additional employment which creates the increase in incomes).³ But, in any event, an increased supply of money will be necessary to satisfy an increased "transactions" demand for money. Then, for each level of income, a separate curve could be drawn showing how much would be saved at different rates of interest. Increasingly large amounts would be saved, at all rates of interest, as income is increased, though at low levels of income the savings curves would almost certainly be relatively flat, because of a high average propensity to consume. Hence, as income rises, not only should we expect the distance between the savings curves to increase, but at the extreme right of the curves there should be a tendency for the curves to curl in response to high rates of interest. In addition to arguing the dependence of saving on income, Keynes was also concerned to emphasise that the supply and demand curves could not be regarded as independent of one another. Given under-employment of resources, any increase in employment—and an increased rate of investment would imply that—would result in a general rise in incomes. This, in turn, would make possible an increase in saving. So that, under these assumptions, an increased demand for saving would itself tend to create conditions in which an increased supply would be forthcoming.

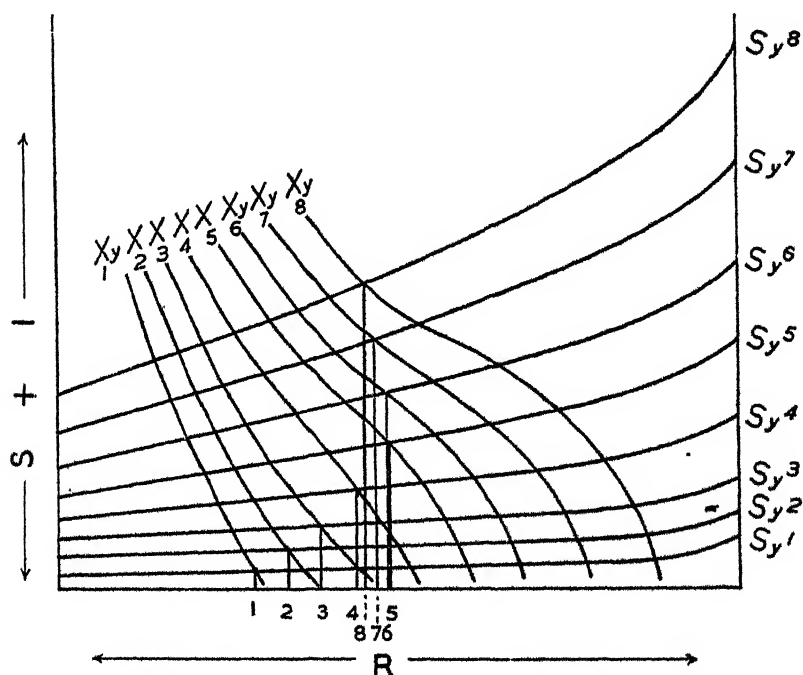
In terms of a diagram, we would measure the rate of interest on the horizontal axis, and savings and investment (at different levels of income) on the vertical axis. For each level of income— $Y_1, Y_2, Y_3 \dots$ —related savings and investment curves— $S_y^1, S_y^2, S_y^3 \dots$ and $X_y^1, X_y^2, X_y^3 \dots$ respectively—could be drawn. These would

¹ See *General Theory of Employment, Interest and Money*, pp. 178ff.

² To the extent that funds are made available as "corporate saving", we must expect the savings curves to be relatively interest-inelastic for low rates of interest, but might expect really high rates (to the right of our diagram) to call forth increasing amounts of saving (out of any given income) from "non-corporate" sources. However, because such high rates are unlikely to obtain in practice, the extreme right-hand portions of the curves must strictly be regarded as hypothetical only.

³ It is no part of our present purpose to consider the possibility of a continued increase in money flows beyond the point of "full employment" of resources, nor the related problem of "forced savings".

represent schedules of the amounts of saving and investment, which would be undertaken at the various levels of income in response to an increasing rate of interest. The general shape of the savings curves has already been indicated. They will be flat at first, tending later to curl and to become wider apart, and will rise from left to right. The investment curves will tend to be closer together both in the early and late stages of income growth—in the early stages, because of rather doubtful expectations and in the late stages because of an increasing degree of inelasticity in factor supplies, which will effectively limit the scope for further investment. Those curves will fall from left to right and latterly will tend to become negative in slope towards their lower extremities, as a result of the impact on investment of very high rates of interest.



When the supply of resources is elastic—i.e., when under-employment obtains—an increase in investment (or a shifting upwards of the investment demand curve) will result in a rise in income, as a result of the employment and income multiplying effects of these investment expenditures. At the same time, and in consequence of this rise in income, there will be an increase in the rate of saving—i.e., an increased supply of saving, evoked (in a sense) by the previous increase in the demand for savings. Conversely, if there were a fall

in investment demand, there would tend to be a fall in income and less saving would take place—i.e., as the demand for saving fell away, there would tend to be a corresponding falling off in the supply of savings. It cannot be denied that this “income effect” does tend to swamp the influence of the rate of interest, but it does not eliminate it.

We must now remove our assumptions of a single rate of interest and the absence of costs of shifting from one type of financial investment to another. In other words, we must accommodate the fact that in the real world the businessman is faced with a whole *complex of interest rates* and that in the making of an investment decision one interest rate may be more relevant than another. Loanable funds do not become available in one market alone, but in a group of related markets. Nevertheless, the very fact that these markets are related implies points of contact between them¹ and the possibility of either shifting funds from one to another or of seeking funds in one market rather than another. But there will be obstacles to such switches both on the demand side and on the supply side. Frictions will operate between the several markets and condition the degree of freedom with which access to them is possible. Any attempt to shift funds from one market to another, or any attempt to change the source of supply, involves costs to both borrowers and lenders. The costs of investigation, brokerage charges, transfer taxes, and the actual inconvenience of making a change will all operate to retard any “spilling over” process which one would otherwise expect to take place. The businessman will be anxious to borrow as cheaply as possible, but in reaching his decision he must consider all costs. In addition, he must take into account the period for which the funds are available, since it may well prove to be a costly business to secure long-term finance by borrowing short on a succession of occasions, just as it is uneconomic to borrow long if one’s needs are for short-term accommodation.²

The businessman’s needs differing as they do, it would be remarkable if there were only one source of finance and, in practice, we find that a variety of specialist institutions have been evolved for the purpose of accommodating him. If he wants permanent capital (and the firm concerned is of sufficient importance and strength), he can arrange an issue on the Stock Exchange. If a long-term loan is required, debentures may be the appropriate technique. For truly short-term accommodation, a bank loan will serve his purpose. But sometimes a firm may be too small, or not sufficiently well-informed, to secure finance on favourable terms and may be forced to raise funds at high

¹ There are, as it were, channels of communication between the several markets for loanable funds and it is along these channels that funds can ‘spill over’ from one market to another, the active agents of the process being institutional investors. See Keynes: *A Treatise on Money*, Vol. II (London, 1930), pp. 357–8.

² For a fuller discussion of the factors involved, see F. A. Lutz: “The Structure of Interest Rates”, *Quarterly Journal of Economics*, Vol. 55, 1940–41, pp. 36–63.

rates and on stringent conditions. It is true that in recent years industrial finance institutions have been set up to overcome the more obvious restrictions, but there are still some businesses which—for a variety of reasons—have difficulty in raising money for investment purposes. Not all of these are without reasonable prospects. In other cases, firms are able to resort to internal finance and to tap reserve funds built up out of undistributed profits. Indeed, in the modern world, "corporate saving" now accounts for a considerable part of the total financial resources available to business.¹

Even if we consider finance from the same source, the terms may well vary within relatively wide limits. For example, in the United Kingdom, large companies which resort to bank finance² may expect to secure accommodation at about 3 per cent. per annum and, in special circumstances, may be accommodated at an even finer rate, say $2\frac{1}{2}$ per cent. to $2\frac{3}{4}$ per cent. per annum. The small trader, on the other hand, could scarcely expect to do better than $4\frac{1}{2}$ per cent. per annum and may (occasionally) be forced to go as high as 5 per cent. per annum, though the last rate is very much the exception these days.³ Similar conditions—though with an even wider spread—obtain in the United States. A recent survey indicated "that

¹ The importance of company profits as a source of saving can be illustrated by reference to the *Economic Survey for 1949* (Cmd. 7647), Table 25, p. 39. The relevant figures are detailed below:

| | 1947 | 1948 | 1949 |
|---|-----------|-----------|------------|
| Gross Capital Formation at Home | £2,040 m. | £2,352 m. | £2,330 m.* |
| Depreciation Allowances | £ 750 m. | £ 825 m. | £ 900 m.† |
| Undistributed Profits | £ 405 m. | £ 540 m. | £ 575 m.† |
| | £1,155 m. | £1,365 m. | £1,475 m. |
| Additions to Company Tax Reserves | £ 40 m. | £ 50 m. | £ 45 m.† |

(* Forecast for 1949 at end-1948 prices.)

† Forecast for 1949 at 1948-49 tax rates.)

Thus, for the year 1948, the most recent for which statistics are available, 58 per cent. of gross capital formation at home was financed from depreciation allowances and undistributed profits and, for the previous year, 56.6 per cent. was so financed. It is only fair to point out, however, that these percentages are without doubt inflated by the current necessity to make good war-time consumption of capital and a somewhat lower percentage may well obtain once war-time arrears have been made good.

² As a matter of interest, companies now seem to be resorting increasingly to bank finance. See "The Banks and Industry", *The Economist*, 12th February, 1949, pp. 292-4, and "Finance for Industry", *The Economist*, 12th March, 1949, at p. 474.

³ One should also consider in this connection sources of finance alternative to bank borrowing and available to the small business unit. Undoubtedly, the most important alternative source of borrowing is trade credit. Usually, the rates of interest charged for such finance are high, though the effective rate of interest charged is frequently concealed in prices and not expressed directly. Hire purchase is another means of securing credit and is resorted to quite often. In the United Kingdom, a representative rate for this type of accommodation might be of the order of 11 per cent. p.a., but it must be emphasised that the hire purchase companies also provide services and advice, as well as the finance, and some adjustment is necessary on this account before an effective comparison can be made. Nor does the small trader always have to borrow at a disadvantage. A certain amount of borrowing is still done, at less than minimum bank overdraft rates, on bills and acceptance credits. In the main, the large firms probably receive most benefit from this form of accommodation, but there is also a not inconsiderable number of relatively small firms now making use of these facilities. Acceptance credits for £20,000 and less are not uncommon in the City of London. (The information on which this footnote was based was kindly supplied to me by Mr. R. F. Henderson of Corpus Christi College, Cambridge, and I am indebted to him for his valuable help.)

rates tended to be considerably higher on small loans than on large loans, even when other loan and borrower characteristics were essentially similar. Rates on business loans at all member banks [of the Federal Reserve System] as of November 1946 ranged from an average of about 7 per cent. on loans of less than \$1,000 and about 5 per cent. on loans of from \$1,000 to \$10,000, down to an average of about 2 per cent. on loans of \$500,000 or more. Short-term loans to large prime commercial borrowers were generally made at 1.5 per cent. at that time".¹ So that there is clearly a range of relevant rates even for funds from the same lender, a range which may be attributed primarily to different degrees of risk² and to cost factors, but which cannot be explained wholly in these terms.

In the result, the businessman will presumably endeavour to equate his expected rate of profit at the margin with whatever rate of interest is relevant to his current line of activity. Not only will different entrepreneurs have access to funds (for the same period) on rather different terms, but within a particular business unit itself one rate may be more relevant in one connection than another—i.e., there would presumably be a tendency to equate at the margin the expected rate of profit on a short-term investment with a "short" rate of interest and the expected rate of return on new fixed capital with a "long" rate of interest (with the "pure" long rate of interest as the limiting factor, because if no more than this could be expected from investing in new plant presumably the entrepreneur would put his money into Consols)³.

It should be apparent that investing short or long (in a non-monetary sense) is not mutually exclusive. It is impossible to consider investment in fixed capital to the exclusion of investment in circulating capital. The two must be combined in some workable proportion and, although a range of possible combinations will exist, there are limits to the emphasis on one type of investment or the other. Within these limits, the degree of permanence of any increase (or decrease) in the expected rate of profit will be relevant to a particular investment decision—i.e., expectations must relate not merely to the rate of profit but also to the expected duration of that rate. With that qualification, the entrepreneur will attempt to choose his most profitable position and it is on that basis that he must decide the ingredients of his investment. The same criteria are relevant in any decision relating to changes in the degree of capital intensity ('normal' or 'actual').⁴ Such changes will depend simply on whether they are

¹ See R. Youngdahl: "New Statistics of Interest Rates on Business Loans", *Federal Reserve Bulletin*, March, 1949, Vol. 35, No. 3, pp. 229-230.

² It is important to observe, however, that these risks operate on the side of the borrower as well as that of the lender. The "borrower's risk" will increase, for example, with an increase in the magnitude of his investment in relation to the existing size of the firm. In a similar way, the "lender's risk" will increase with any diminution in the margin of loan cover.

³ Expectations of the future yield of Consols would, of course, be distinctly relevant here.

⁴ For a definition of these terms, see N. Kaldor: "Capital Intensity and the Trade Cycle", *Economica* (N.S.), Vol. 6, 1939.

profitable or not. Or to use R. G. Hawtrey's terminology, it does not matter from our present point of view whether investment takes the form of a "widening" or a "deepening"¹ of the capital structure. Surely, it is the rate of return per unit of time on any given investment which is significant, though capital widening in *new* fields may be more important in raising the schedule of the marginal efficiency of capital than will any attempt to exploit the possibilities of deepening.

Reference was made above to the use by businessmen of internal sources of finance. In this connection, it may be thought that the rate of interest ceases to be important. If, however, the businessman acts rationally (an assumption we have chosen to retain), he must charge himself an "internal" rate of interest,² the level of which must be determined by reference to the opportunities of gainful employment, which he forgoes by using these funds in his own business. In this case, the relevant rate is the highest outside rate he could expect to earn on his funds, if he chose not to invest them in his own business (due allowance being made for different degrees of risk). However, Mr. Klein does not believe that entrepreneurs will act rationally and charge themselves "imputed interest costs" when they use internal funds for investment. On the contrary, he subscribes to the view that "the use of internal funds for financing will lead investors to ignore fluctuations in the market rate of interest."³ This may well be true for "supplementary" investment, once funds have been committed in a heavy initial investment, but is less likely to be true when (for example) a new plant is being planned. The incidental fluctuations of the market would be ignored in any case. It will be an average of expected future rates which will be relevant.

Finally, brief mention must be made of the *imperfect mobility of resources*. The existence of such immobilities will serve to emphasise the importance of complementarities. It is no use having a new machine, if either the labour to work it or the raw materials to feed into it (or both) are not available. This will have the obvious effect of limiting investment opportunities to the factor combinations available and which are profitable at current and expected prices. Furthermore, choice of a particular combination may be made more difficult, because on the basis of anticipated price relationships several different factor combinations may give the same profit result. Moreover, with conditions in a constant state of flux and price relationships changing all the time, expected profits may be wiped out. In such circumstances, the entrepreneur would attempt to re-arrange his

¹ See *Capital and Employment* (London, 1937), *passim*.

² But see F. Machlup: "Period Analysis and the Multiplier", *Quarterly Journal of Economics*, November, 1939: "Of importance also, in a world of credit rationing, is the fact that the 'internal rates of interest' of individual business firms may be higher than the rates at which they actually borrow. If, because of narrow lines of credit, firms cannot borrow as much as they would like to, the marginal efficiencies of the funds which are available to them constitute their internal interest rates." (Quoted from reprint in *Readings in Business Cycle Theory* (Philadelphia, 1944), p. 231.)

³ I. R. Klein, *op. cit.*, p. 65.

forces, but when faced with resource immobilities he may well find that he has lost his freedom of manoeuvre and is now committed to an unprofitable undertaking. To the extent that there is imperfect mobility of resources, then, there is a loss of flexibility and the uncertainties of making a particular investment are increased. This will have the effect of increasing the margin of profit which must be anticipated before an investment is undertaken. In short, the margin for risk will have to be raised and the frictions operating on the side of real investment must be added to those which obtain in the monetary field.

IV

Our conclusions are somewhat negative. First, we can only claim that the tendency for the rate of interest to equal the marginal efficiency of capital will obtain under very restrictive assumptions. In point of fact, many variables will influence the businessman's attitude towards investment. While the present writer would not go so far as to assert that "producer expenditures for capital equipment are insensitive to changes in the rate of interest",¹ he would agree that on many occasions the influence of the interest factor is definitely swamped by other more obvious considerations. Moreover, in a capitalist (or quasi-capitalist) economy, investment opportunities rarely appear, unless surrounded by a penumbra of doubt and uncertainty. The expected rate of profit must take these risks and uncertainties into account and must exceed the interest rate by an amount sufficient to compensate for them. To the extent that the non-interest components of the discount variable outweigh the interest component, fluctuations in the interest rate will be of little importance.² Furthermore, even though we may assume that the entrepreneur aims at an *ex ante* equality between the rate of interest and the expected rate of profit, in a dynamic situation there need never be an *ex post* equality. Second, it will often happen that no two entrepreneurs will have access to financial resources on exactly the same terms. Not only is there a whole range of interest rates, but also a whole range of conditions which may be attached to a loan. In these circumstances, we found that for each investment project there tends to be one interest rate which is particularly relevant and, to the extent that the entrepreneur acts rationally, he will try to secure an equation at the margin between this rate and his expected rate of profit. So that the neat formula with which we started has now become greatly obscured and we are left with no more than a murky suspicion of what the final result will be in the real world of the businessman with its constant frictions, change and (one should add) irrationalities. For all that, there will still be traces of an underlying process, which no amount of distortion can completely eliminate.

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¹ L. R. Klein, *op. cit.*, p. 64.

² Cf. Klein, *ibid.*

Three Notes on "Expectation in Economics"

I

By RALPH TURVEY

IN this book¹ Dr. Shackle presents a new treatment of uncertainty, which is both highly original and stimulating, as an alternative to the orthodox approach with which he is very dissatisfied. In order to give a brief summary of Dr. Shackle's basic construction, let us consider the extremely simplified case where a man has the choice of either holding a certain sum of money or investing that sum in a manner which will give him a profit, x , which may be positive or negative. We are thus concerned to analyse the decision whether or not to exchange the certainty of neither gain nor loss for the possibility of either.

Dr. Shackle's first contribution is the postulate that the individual's expectations concerning x can be represented by a "potential surprise function", $y=f(x)$. This gives, for each value of x , the surprise, y , which the individual thinks he would feel if x actually turned out to have that value. Potential surprise, y , can vary between a certain maximum, y , representing absolute disbelief, and zero. Zero potential surprise need not mean full certainty; indeed if the individual has no idea at all as to what the future will bring then he will attach zero potential surprise to all values of x . Dr. Shackle supposes that there will be a certain "inner range" of values of x , none of which would cause surprise if realised. Beyond this inner range the degree of potential surprise will rise as x is greater (a gain) and as x is smaller (a loss).

In order to compare the attractiveness of holding money with that of the investment it is necessary to obtain some epitome of the potential surprise function. Here Dr. Shackle makes his second major contribution. He assumes that we epitomise the possibility of loss by considering that value of x less than zero which most attracts our attention and that we epitomise the possibility of gain by considering that value of x greater than zero which most attracts our attention. What factors draw our attention? Dr. Shackle answers that for a given value of x our attention will be attracted more as the degree of potential surprise is less, while for a given degree of potential surprise our attention will be attracted more as x is greater (positive or negative). Thus a set of indifference curves can be drawn such that all the points on any one of them have an equal power to attract attention. It is

¹ G. L. S. Shackle : *Expectation in Economics*, Cambridge University Press, 1949, x, 146 pp. 10s. 6d.

evident that in nearly all cases there will be two points on the potential surprise curve which draw a maximum of attention, given by tangency with indifference curves. Dr. Shackle maintains that the individual will concentrate exclusively on the two values of x so determined and calls them the focus-loss and the focus-gain. The individual will decide whether or not to invest by comparing the focus-gain and the focus-loss on the one hand with the certainty of neither gain nor loss (when cash is held) on the other.

Intuitively this hypothesis seems attractive. In deciding whether or not we shall take our holiday at a certain time and place we may weigh up against one another the medium-good possibility of fair weather and the medium-bad possibility of dull weather. We do not consider the possibility of earthquakes or (in England) the possibility of unbroken warm sunny weather. Nor do most of us behave as the orthodox theory would have us behave, and visit the Meteorological Office in order to calculate the mean amount of precipitation per day that is probable!

An essential feature of Dr. Shackle's approach is the idea that we do a thing because the decision to do it enables us to enjoy now the prospect of a future gain, tempered by the prospect of a loss, instead of doing it because on balance we expect that when the final result eventuates we will gain. It follows that his theory is only applicable to the business decisions of firms where ownership and management are separated if we can assume that the manager identifies himself with the firm. But when a manager is concerned only to maximise profits or where, for example, we consider the activities of a professional speculator in futures, it is not evident that Dr. Shackle's theory can be applied without modification.

There are evidently very considerable differences between Dr. Shackle's approach and the orthodox analysis of uncertainty, and it will be of aid in understanding the novelty of the former if we examine some of these differences. To start with we may distinguish between:

- (a) An actuarial frequency distribution, obtained from the observation of a large number of instances, showing definite numerical probabilities. (Knight's risk.)
- (b) A subjective probability distribution. (Knight's uncertainty.)
- (c) A potential surprise function.

Dr. Shackle calls (b) as opposed to (a) a "sham" frequency distribution on the ground that it is not based upon observation of a large homogeneous set of instances but is a matter of estimation and hunches. Formally, however, (b) and (a) are alike. We may perhaps best distinguish (b) by calling it a "likelihood function".

What, then, is the relationship between the likelihood function and the potential surprise function? At first sight the latter seems to be merely an inverted likelihood function, but this is by no means

the case. While for any value of x maximum potential surprise corresponds to zero likelihood, zero potential surprise will only mean unit likelihood in a very special case (where the maximum of potential surprise is attached to all other values of x) since the realisation of a particular value of x may cause no surprise even though that result was not considered certain. Furthermore, while the likelihood of [$x = a$ or b] equals the sum of the likelihoods of [$x = a$] and [$x = b$], the same is not true of potential surprise. Hence if there is an increase in uncertainty so that some extreme values of x are considered less unlikely than before (the potential surprise attached to them falls), the likelihood attached to the middle values of x must fall (since the sum of the likelihoods equals unity) while the potential surprise attached to them may very well remain unchanged.

This non-additiveness of potential surprise accounts for the second major contrast between the orthodox approach and Dr. Shackle's analysis. It is meaningful to epitomise a likelihood function by obtaining a weighted average where the weights are the likelihoods attached to each value of x , but there would be no meaning in performing a similar operation on the potential surprise function—hence the concept of focus-gain and focus-loss. This is the point where many readers will find Dr. Shackle's analysis hard to accept, and he spends a number of pages in making his view clear. It means that two investments will be considered equally attractive, provided they have the same focus-gain and -loss whatever the shape of the two potential surprise functions at other points.¹

The foregoing summary of Dr. Shackle's theory by no means does justice to it. The exposition is clear and painstaking and, furthermore, having made his tools Dr. Shackle turns to apply them. He presents a fascinating analysis of the changes in his expectations which a person can logically expect, and from it draws some conclusions concerning the rate of investment. He then considers in turn the speculative purchase of assets, the effects of taxation on investment and bilateral monopoly. He concludes his book by delivering a broadside at the orthodox analysis of uncertainty. Altogether he has given us plenty to think about.

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II

By J. DE V. GRAAFF and W. BAUMOL

MR. SHACKLE'S *Expectation in Economics* makes a double contribution. It develops a quite devastating criticism of the orthodox probability

¹ The analysis is actually a little more general than this statement suggests. Dr. Shackle supposes that in choosing between two investments the individual compares not the "primary" focus-gains and -losses (given by tangency) but the "standardised" focus-gains and -losses. These are the gains and losses with zero potential surprise, between which and the primary focus-gains and -losses he is indifferent.

approach to expectation to be found in most theoretical discussions by professional economists; and it seeks to put something better in its place. This note is devoted to an examination of three of the concepts—viz., focus-values, potential surprise and degree of belief—which he introduces in the course of his search for something better than the traditional theory. In thus circumscribing its scope much of interest is excluded. But the essence of Mr. Shackle's novel treatment is perhaps made to stand out more clearly if a host of minor matters are temporarily ignored.¹

(1) *Focus-values*. Mr. Shackle suggests that a person will assess the attractiveness of a course of action by reference to but two hypotheses concerning the outcome of the course. The one (the focus-gain) will epitomise for him what he stands to gain, and the other (the focus-loss) what he stands to lose, by committing himself to the course of action in question. He will ignore entirely, Mr. Shackle suggests, all the other hypotheses concerning the outcome of the course which seem to him to be in varying degrees possible, and concentrate his effective attention on these two focus-outcomes.

This view merits consideration. Take the following example:—a man is faced by two alternative courses of action, *A* and *B*. To embark on either he must pay £1. Now assume that there are three balls in the little bag one always keeps ready for experiments of this nature: one red, one white and one blue. He is allowed but *one* draw from the bag—the experiment is thus in every sense *unique*. If he has chosen Course *A*, the red ball will earn him £10, the white £7 and the blue nothing. If he has chosen Course *B*, the corresponding sums are £10, £3 and nothing. Thus (recalling that he must pay £1 to embark on either course) the focus-gain is £9, and the focus-loss £1, no matter whether he chooses *A* or *B*. On Mr. Shackle's theory, therefore, he should be indifferent between *A* and *B*. Yet, if the reader tries this experiment on his friends (perhaps substituting pennies for pounds), he will almost certainly find that the majority show a marked preference for Course *A*—thus indicating that they choose between alternative courses of action by referring to the whole range of possible outcomes, rather than by concentrating their attention exclusively on the focus-gain and the focus-loss.

It is not altogether clear whether Mr. Shackle presents the hypothesis that people concentrate on the focus-outcomes as no more than a

¹ One such matter may, however, be mentioned in passing—for it is likely to cause the careful reader some trouble. In Appendix D to Chapter II, Mr. Shackle says (p. 47): "Let *Q* be a set of questions which, if the answers to all were known, would determine the value which will be taken at some named future date by a variable *x*". Surely there is but *one* question, the answer to which determines the relevant value of *x*—viz.: "What value will be taken by *x*?" No matter how many *other* questions we are able to answer, we can never be quite sure what value *x* will take. For, in general, we are uncertain as to just what variables determine *x*, and just how they determine it. It does seem, however, that the argument of Appendix D can be modified to meet this criticism: a set of questions can generally be specified, the answers to which will give the potential surprise curve a more compact shape. It would appear that this is all Mr. Shackle requires for his argument.

useful simplification of reality, of the kind we are continually looking for in our researches; or whether he means it to be taken quite literally. His position seems to call for a little clarification. And if, in the world about us (as opposed to his model), people do in fact take the whole range of possible outcomes into account, we must be careful about applying to the world propositions derived from a strict interpretation of the assumption that they fix their attention on the focus-outcomes only. There are two points where this observation seems to be relevant:—

Firstly, Mr. Shackle has to exercise considerable ingenuity to explain on the basis of his theory why people should ever hold a combination of more than two assets for the purposes of speculative gain. He does point out (p. 90) that if speculators were to consider qualities of a combination other than its focus-gain and focus-loss, the phenomenon would be explained. But this explanation is not developed, and it would be interesting to see how much of the theory of focus-outcomes would remain if it were once admitted. Very little, one suspects.

Secondly, in his search for a formula for a tax that will preserve the incentive to enterprise (chapter V), Mr. Shackle arrives at an ingenious scheme for taxing profits *ex post*, while leaving them effectively untaxed *ex ante*. This involves allowing the entrepreneur to declare in advance a particular rate of profit, and then taxing him on the deviation of the rate he realises from the one he has declared. If he really concentrates his attention on the focus-gain, he will declare the rate of profit corresponding to it; and, since it will bear no tax, the *ex ante* stimulus to enterprise remains unimpaired. But if the entrepreneur considers instead the whole range of possible gains (and losses), this subtle device seems to break down, and to have much the same effects on enterprise as less novel methods of taxation.

(2) *Potential Surprise*. The probability concept, Mr. Shackle rightly holds, is appropriate when discussing the tendency for a particular outcome to occur in a series of identical situations—such as the tendency for a coin to show heads when tossed fifty times. But it has no meaning when applied to a single, essentially unique, event. One of his most fascinating suggestions is that we should substitute for the idea of probability that of potential surprise when considering events which are essentially unique. The potential surprise a man attaches to a particular outcome of such an event is an index of the intensity¹ of the shock or surprise he would experience if he were to learn (without there having been any other change in the data available to him) that this outcome would in fact occur. Thus, if he believes an

¹ Mr. Shackle actually goes on to discuss (in Appendix A to Chapter II) the possibility of measuring this intensity for any one person, and of making interpersonal comparisons of degrees of potential surprise. This seems to be a little ambitious, however, as an index of potential surprise seems to be all that we require for the majority of problems.

outcome to be "perfectly possible", zero potential surprise attaches to it.

The idea of potential surprise is of peculiar interest because it represents a step towards what one might perhaps call a truly *subjective* theory of confidence (or, if the term be not misunderstood, of probability). Thus consider a single draw from a deck of $(n+1)$ cards, of which n are red and one is black. In terms of the orthodox probability theory the chance of drawing the black card is $1/(n+1)$ —even if one is allowed but a single draw. In terms of Mr. Shackle's theory it is whatever the man making the draw considers it to be. If he firmly believes the Goddess of Chance to be smiling upon him, he will attach zero potential surprise to drawing the black card, however large n may grow; whereas, under different circumstances, he may begin to attach positive degrees of potential surprise to drawing the black card when n is still quite small.¹ The great merit of Mr. Shackle's theory is that it emphasises very strongly the subjective element in this process. Its drawback (if it is a drawback) is that, unlike orthodox probability theory, it neither presents nor suggests a rationalisation of the indisputable fact that the majority of men will almost certainly become more and more surprised to draw the black card as n becomes larger and larger. On the orthodox view this is simply because the "probability" of drawing the black card in a single draw diminishes with $1/(n+1)$. On the basis of Mr. Shackle's theory it cannot be accounted for—it can achieve no status higher than that of an inexplicable empirical generalisation.

Yet this thoroughgoing emphasis on the subjective may well prove to be of the greatest importance. Nothing short of a revolution occurred in the central body of theoretical economics when the subjective theory of value was developed. Is it too much to hope that the development of an essentially subjective theory of expectation, and especially of the confidence with which these expectations are held, may have repercussions no less important in other branches of the subject?

(3) *Degree of Belief.* The stimulus imparted to an individual by a focus-gain or focus-loss of x , associated with potential surprise y , is indicated in Mr. Shackle's system by the function $\phi(x, y)$. Now a certain difficulty seems to arise in this connection. Consider a man faced by two alternative courses of action, in neither of which does a focus-loss make its appearance. The first will yield him $\pounds 1$ with complete certainty. The stimulus it imparts to him is thus $\phi(\pounds 1, 0)$. The second course of action will yield him either $\pounds 1$ or nothing, according as a tossed coin shows heads or tails. It seems to be Mr. Shackle's hypothesis that the man will attach zero potential surprise to gaining the $\pounds 1$ —for it is "perfectly possible", and hence not surprising, for

¹ In general, however, it seems to be Mr. Shackle's view that, provided n is not too large, the associated potential surprise will be zero.

the coin to show heads. Thus the stimulus would again be $\phi(\underline{f}_1, 0)$ —for the focus-gain is still \underline{f}_1 .

Yet, in spite of the fact that the stimulus is $\phi(\underline{f}_1, 0)$ in both cases, it does seem reasonable to suppose that the first would impart a keener stimulus (in some relevant sense) than the second. For in the first case \underline{f}_1 is won with certainty: in the second its winning is a matter of true uncertainty. Mr. Shackle's ϕ function seems to fail to distinguish the one from the other.

A way out of this dilemma *may* be provided by making use of Mr. Shackle's concept of an individual's "degree of belief" in a hypothesis. This depends (p. 130) on the degree of potential surprise associated with the hypothesis, *and on the degree associated with its contradictory*. If we let ϕ depend on the degree of belief, instead of just on the potential surprise, we have $\phi(\underline{f}_1, 0, 1)$ for the first course—if we adopt the convention that the absolute maximum of potential surprise (such as is associated here with *not* winning the certain \underline{f}_1) is represented by unity—and $\phi(\underline{f}_1, 0, 0)$ for the second. This seems to make the required distinction between the certainty of the first course and the true uncertainty involved in the second.

* * * *

Finally, we may note that while the hypotheses here considered are empirical assertions about entrepreneurial behaviour which cannot be established or rejected on *a priori* grounds alone (note our suggested experiment!) and not assertions as to how the undertaker must behave if he is to be rational, it is upon the empirical premises and not on any assertions of rationality that Mr. Shackle's analysis is based. However, he does seem to suggest that the entrepreneurial behaviour posited by him is also rational and indeed at times he appears to argue that we can presume that entrepreneurs act thus because it is rational.

The argument seems to be essentially that in a once-and-for-all decision one can afterwards derive cold comfort from the knowledge that there were alternative gains or losses conceivable; and that since the experiment is not repeatable, alternative gains (to the focus-gain) have in some sense no additional power to protect from loss. Nor has an increase in the *actuarial* value of the gain such power.

Thus in the balls in the bag experiment it is not particularly cheering, on drawing the losing ball, to know that one accepted the arrangement in which the white ball could have netted the larger prize. Similarly in the potential surprise argument it is not much help to have chosen a one red, one black card pack rather than a one black, fifty red card pack if one still fails to draw the desired black.

Yet in a sense, and though it may smack of metaphysics, is there not some sense in having chosen in this way? One cannot help feeling that it is somehow rational to choose the alternative with the greater actuarial value even where, because the experiment is unique, the actuarial calculation cannot be taken literally.

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III

By G. L. S. SHACKLE

AN author can seldom, I think, have had such cause for gratitude to the critics of his work for the extreme thoroughness and care with which, so plainly, they have examined it; for the friendliness which tips the shafts so skilfully directed; and above all for the gifts of exact thought and penetrating insight which they have brought to bear upon his problems. Let me respond worthily, if I can.

By a *unique* trial (experiment, question about the future) I mean one which is unique in its effect on the life of the individual who makes it; that is, a trial whose character and circumstances are not sufficiently like those of other trials which he expects to make for him to treat all these trials as parts of a larger whole, with whose outcome *as a whole*, and not with those of the separate trials composing it, he is really concerned. It may also be true of a trial, whether or not it is unique in the above sense, that the individual's own experience or the available record of history do not provide instances similar and numerous enough for frequency-ratios to be obtained; this is a separate, and for the logic of my case a minor, matter. The most fundamental and essential source of uniqueness in a trial is *crucialness*: see below.

By an *isolated* trial I mean one which is rendered virtually unique by time-separation from expected trials resembling it, so that the latter cannot loom large enough in the individual's time-perspective, compared with the immediately future trial, to be combined with the latter into a larger whole whose outcome as a whole, and not that of the separate trials composing it, is what matters to him.

By a *crucial* trial I mean one whose outcome, like a chess-move, will affect the whole future course of relevant events for the individual. A crucial trial is necessarily unique. By making it the individual gives himself a new set of circumstances and opportunities, so that it is logically impossible for him ever to repeat the experiment which brought this new situation about. *Crucialness* is the real and important source of *uniqueness* in any occasion of choosing: and far from being unusual, it is all-pervasive; perhaps it is not too much to say that every choice I make is crucial, and steers my life into a path different from what it would otherwise have followed.

It is because I believe most occasions of choosing are, and *are felt to be, crucial* that I attach so much more importance to the unique or isolated experiment than to the kind typified by drawing balls from an urn or tossing a coin (except when the latter is for choice of stations in the Boat Race or of innings in a Test Match).

Now when an experiment, a question about the future, is unique, isolated, or crucial, it does not make sense to *add together* its *rival* hypothetical outcomes or answers. They are *mutually exclusive*. One alone will come true, the others will be for ever false. This is in absolute contrast to what we can say of each of a *series* of trials all in some

sense alike and each important only as it contributes to the total result of the series. To decide between rival courses of action when each is a crucial or unique experiment, a man must surely choose for each some single clear-cut hypothesis to give him that *enjoyment by imagination* which is all the good that something in the *future* can give him. He cannot *add* the rival hypotheses, he must choose between them. How are we to introduce, as we must, his doubt and uncertainty into his process of choosing? The traditional view, I suggest, substitutes the idea of *confusion* for that of *uncertainty*: all the rival hypotheses, shouting together with their many voices, give him a confused impression that he should move one way rather than the other. Since all of them necessarily are liars but one, this procedure is an irrational compromise. My own suggestion is that of focus-values described in Chapter II and Appendices 'C' and 'E' of my book, and the first point I have to deal with is my view, contested by my critics, that the individual, once he has selected the 'most powerful element' amongst the hypotheses of gain and similarly amongst those of loss, will confine his attention to these two 'elements' exclusively.

He cannot *add* the rival hypotheses; how then is he to use them except by selecting distinguished individuals from amongst them? Are we to suppose that he vacillates between them? This is merely another version of the confusion of voices. Or that, distrusting the focus-gain, he keeps in reserve at the back of his mind other hypotheses, less attractive in pure *content* but carrying lower potential surprise, to comfort him against the idea that the focus-gain may not be realised? To think this is to misunderstand the nature of potential surprise as I conceive it, and of enjoyment by imagination.

All hypotheses to which a man assigns zero potential surprise have perfect and undulled access to his mind, and he is not rendered less sensitive to any one of them by an increase in their number. He cannot rationally, I think, 'crowd out' a disagreeable hypothesis by having also in mind other less disagreeable or positively agreeable ones. These would indeed take away from the disagreeable hypothesis some of its *numerical probability*, and therefore the latter concept thus misapplied distorts the truth. Against a hypothesis of disaster, rival hypotheses can provide no *defence*, no barrier or analgesic; only (if they are hypotheses of success) a counterpoise. Such an analgesic, if the circumstances provide one, must consist in high potential surprise, a denial of plausibility, attached to the unpleasant hypothesis itself. Amongst gain-hypotheses, therefore, none *smaller* than the focus-gain can contribute anything to the venture's attractiveness. What of gain-hypotheses larger than the focus-gain, that is, those elements which are weaker than the most powerful element through carrying too high a degree of potential surprise? The very fact that they *are* weaker means that, having assigned to each rival hypothesis the degree of potential surprise that intuition suggests, the individual finds that the venture looks most powerfully attractive when he

thinks of it as the possible (though slightly doubtful) provider of gain x_1 , than as the more doubtful provider of gain $x_2 > x_1$. (He *must* think of it as one or the other.) The larger but weaker gain-hypotheses could influence the individual, I think, only through vacillation. Plainly, when he makes his decision, vacillation is at an end.

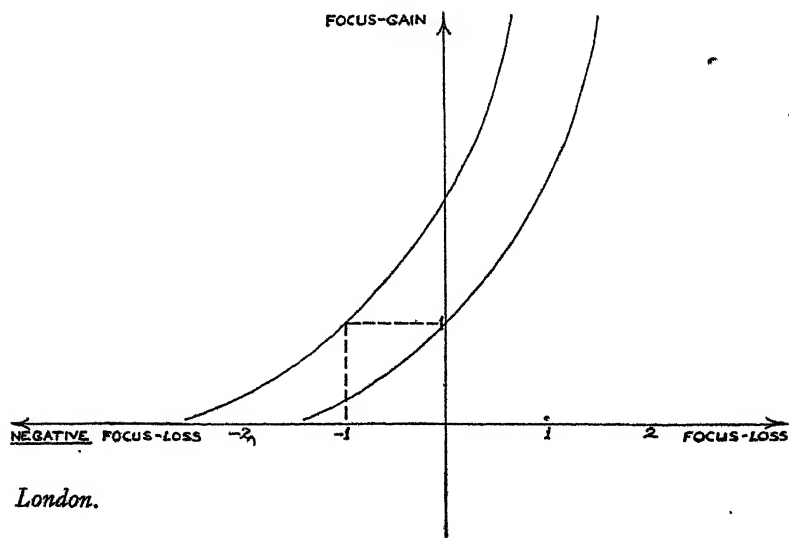
In sum, I must ask my critics: Can one really entertain two *mutually exclusive* hypotheses at one and the same time in such a way *that they reinforce each other* in giving enjoyment?¹

What is the source of my critics' feeling that other elements besides the two 'most powerful' are taken account of in the individual's final decision? I think it is that they are still unconsciously thinking in terms of numerical probability and of repeated trials forming parts of a larger whole which alone is significant. They may even feel that I exaggerate the importance and pervasiveness in life of *unique* occasions of choosing as compared with those which can be all thrown together into an actuarial cauldron until the uncertainty belonging to each comes out in the wash. But do not all those moments which have some quality or savour that makes up the worth while part of life seem to us unique? A child who is prevented by some last-minute hitch from going to a party can by no means be consoled by being told that there will be plenty of other parties in future months and years. We live in the present moment. If I fail to make a success of *this* moment, my whole faith in my capacity for dealing with life is to some degree undermined.

How does my system discriminate between the respective degrees of attractiveness to a man of two alternative courses of action, of which one will yield him £1—for *certain*, and the other will yield him £1—or nothing according as a tossed coin shows heads or tails? This illustrates a class of cases which I ought to have considered amongst the Special Cases of Appendix 'B', viz., those where the only outcomes carrying zero potential surprise are gains (or at least do not include any losses). Mr. Graaff has suggested to me that the ϕ -function should be made to depend on the individual's *degree of belief* as I have defined it in Appendix 'E', by the introduction, as a third independent variable, of the degree of potential surprise attached to the contradictory of a hypothesis. But this remedy will not serve for the *general* case of y -curves whose inner range includes no losses: it is useful only for those cases (rare, I have assumed, in economic subject matter) where one particular hypothesis is looked on as 'more likely' than *any* other. For if there is any other hypothesis also carrying zero potential surprise, i.e., if the inner range is not merely one single value of x , then the potential surprise attached to our contradictory will be *zero*, and cannot, therefore, help the ϕ -function to discriminate

¹ The uncertainty inherent for the individual in a situation where he feels that either hypothesis *can* be entertained need not be given expression by the rationally impossible feat of enjoying by anticipation *both* the mutually exclusive outcomes at the same time. The uncertainty can be expressed by potential surprise assigned individually and independently to *each* hypothesis regardless of others.

between y -curves having different 'loss-excluding' inner ranges. (This point illustrates a quite basic and essential aspect of the very *raison d'être* of my whole construction, viz., the uselessness in general of any concept of *positive belief* or *confidence* in a hypothesis: you cannot at one and the same time believe positively in (have more than zero confidence in) both (all) of two or more *rival* (mutually exclusive) hypotheses. Hence we must use a measure of *disbelief*). Degree of belief is no remedy: but no remedy is needed. My ϕ -function as it stands can discriminate perfectly between the two alternatives in the case proposed by Mr. Baumol and Mr. Graaff. For just as we insist that a quadratic equation always has *two* roots, and in such a case as $(x-a)(x-a)=0$ we say it has *two equal roots*, so we must suppose the individual to ask himself always what is the 'least good' hypothetical outcome that he need consider as well as what is the best one. When he is offered £1 with *certainty* the 'least good' hypothesis is a *negative loss* of £1, and the best hypothesis is a *positive gain* of £1. The fact that these two outcomes are identical does not prevent us from plotting on the individual's gambler indifference map the point which corresponds to them. This point $(-1, 1)$ will lie in the upper left-hand quadrant of the map (see Figure) on a gambler indifference-curve above and to the left of (i.e., preferable to) the one containing the point $(0, 1)$ which corresponds to the other alternative, viz., a focus-gain of £1 and a focus-loss of £ zero. In a more general situation where we have two bell-shaped y -curves whose inner ranges both lie wholly on the gain side of the neutral outcome, one curve enclosing the other, the question how the individual will select a 'least favourable' hypothesis for each in order to plot for each a point on his gambler indifference map is important and interesting, but my space here is used up, and I must hope to deal with it elsewhere.



London.

Capital Exports, and Investment in Building in Britain and the U.S.A. 1856-1914

By E. W. COONEY

SOME years ago, Dr. A. K. Cairncross¹ commented on the slightness of our knowledge of the history of the building industry. Its statistics, he said, were unassembled, its organisation practically unknown. Dr. Cairncross believed that the statistics for Glasgow were probably more complete than those for any other town in Britain. They are to be found in his article.

The Glasgow statistics are a result of the Corporation's requirement that building permits must be obtained for all new work. Such a licensing system, operating in connection with building regulations, is the most probable source, for periods before the present century, of a useful annual record of building in any town or city. But for London also there are fortunately available two series of figures, one beginning in 1856, and the other in 1871.

The longer series is constituted by the annual reports of the Superintending Architect of the Metropolitan Board of Works (from 1889 the London County Council). The shorter series is derived from the annual reports of the Commissioner of Metropolitan Police.

Under the Metropolitan Building Act of 1855, the District Surveyors (some fifty-six in number) appointed to enforce the building regulations were to make monthly returns to the Superintending Architect, of new buildings and works of alteration completed, and the fees received for surveying these works. The Superintending Architect, in turn, reported the annual totals of buildings, alterations, and fees in respect of the two kinds of work, and gave also details of fees received in arrears, fees abated, or lost through bankruptcy, and a cumulative total of fees due, together with the numbers of works to which these amounts related. Early in the present century the secondary details (of arrears, abatements, etc.) ceased to appear in the reports in their original form. But the major information about numbers of new buildings, works of alteration, and the fees in respect of these two kinds of work is available in a constant form from 1856.

The fees chargeable by the District Surveyors were laid down in the Act of 1855, and do not seem to have been altered in any important respect until 1921. The Building Act of 1894 provided that a lower fee than had previously been charged should apply to buildings not more than 30 square feet in area, and 10 feet in height; that is, small

¹ A. K. Cairncross: "The Glasgow Building Industry, 1870-1914", *Review of Economic Studies*, Vol. II, 1934, pp. 1-17.

buildings of little cost were to be charged at a reduced rate. It had, however, been a practice, since the inception of the regulations, for the Surveyors to abate the fee where it would be disproportionate to the value of the structure. It was intended that the fee charged should be approximately proportionate to the size (and in general, therefore, the cost) of the building. It is, consequently, possible to regard the annual series of total fees received for surveying new buildings as a rough index of variations in the physical volume of building in the Metropolitan area from 1856. Some qualifying factors must, however, be noted which reduce the comprehensiveness of the series.

Government buildings, and those of railway, canal and dock companies were exempt from the provisions of the Building Acts. Some unintentional omission of building work may also have occurred, especially in the earlier years. In his report covering 1857, the Superintending Architect commented that some districts of large extent "where much business must be done" returned smaller amounts of fees than did other, smaller, districts. But in his report for the next year he was so well satisfied with the system of record and monthly reports that he felt it unnecessary to require a special end-of-year return from the Surveyors. In fact, the Surveyors had every reason to see that no building was incorrectly ignored by them since their incomes were derived from their fees.

It has seemed desirable to test the importance of the factor of fees received in arrears to the attempt to use the figures of fees in respect of new buildings as an annual index of building. Accordingly, the figure of arrears for each year was added to the previous year's figure of fees paid promptly, on the assumption that the greater part of the arrears received had become due in the previous year. The resulting series was graphed and compared with the graph of amounts of fees paid promptly. There were no significant deviations, and it has seemed safe to ignore the factor of arrears received.

It is obviously an important consideration whether the boundaries of the Metropolitan area to which the figures relate remained unchanged over the period under consideration. Investigation suggests that the only possibly important alteration in the boundaries, as established by the Metropolis Management Act of 1855, was the detachment of the district of Penge, on January 1st, 1902. The amount of fees for new buildings in 1902 declined by about £1,050 below the £21,150 obtained in the previous year. Some hundreds of this decline are, no doubt, due to the loss of Penge, but, this apart, the trend of those years was clearly downwards.

The most obvious objection to the attempt to use the Surveyors' Fees as an index of building activity is that they relate to a fixed area, primarily of administrative, not of economic, significance, which was being progressively built over. This criticism can be reinforced by pointing out that the population of the County of London actually declined slightly between 1901 and 1911, while that of Greater London

was rising. It could, therefore, be maintained that the declining trend of new building from 1899 to 1914, shown by the figures, cannot be accepted as valid for London as an economic area, that is to say, for Greater London.

The force of the contention can be assessed by reference to the second series of figures, already referred to (i.e., the annual reports by the Commissioner of Metropolitan Police) of the numbers of new houses built in the Metropolitan Police District. The figures are given by J. C. Spensley,¹ and their value as a verification lies in the fact that, while they include only dwelling houses, and begin only in 1871, they relate to an area considerably larger than the County of London. The area of the Metropolitan Police District since 1839 has been 692 square miles, covering the region within a 15-mile radius of Charing Cross, whereas the area of the Metropolitan Board of Works (and, later, the L.C.C.) has been approximately 117 square miles. Comparison of the graphs of the two series shows a high degree of conformity in their movements over the whole period from 1872 to 1914.

Examination of the graph (p. 353) of the Surveyors' Fees for new buildings shows that building in London between 1856 and 1914 experienced cycles in its activity of greater length than the ordinary trade cycle, and of considerably greater amplitude. The general trend of building was upward from 1856 to 1868, and rather sharply downward from 1869 to 1872, when the first long cycle was completed. The upward trend was resumed in 1873 and continued to 1880, a year which marks the highest level of activity for the whole period of the series. The tendency from 1881 to 1891 was generally downward, and 1891 can, perhaps, be regarded as the last year of the second long cycle. The third cycle seems to have lasted from 1892 to 1914, with 1899 as its peak period. The first World War reduced new building to a very low point, as the annual reports show, but these years of war can hardly be properly included in the term of the third cycle. J. C. Spensley believed² that a reversal of the downward trend of building activity was due about 1914, and was frustrated by the outbreak of war.

A complete explanation of these cycles in terms of a general theory of the economic development of the building industry may be impossible; it is, however, reasonable to attempt the more limited task of relating them to other important movements in the economy of the nineteenth century, for which statistical material is available.

Professor C. D. Long has compiled an index of building in the United States,³ based on the building permit records of 29 cities. This index begins in 1856, using data from one city only (Philadelphia),

¹ J. C. Spensley: "Urban Housing Problems", *Journal of the Royal Statistical Society*, Vol. LXXXI, pt. II, p. 210, March, 1918.

² *Loc. cit.*, p. 170.

³ C. D. Long, *Building Cycles and the Theory of Investment*, Princeton University Press, 1940.

but by 1912 utilises data from all 29 cities. The building permit records show both the number of new buildings and alterations, and their estimated value. Professor Long prepared indices based on both types of data, and a third index using figures of the number of families accommodated. He found¹ that the turning points in these three types of data were fairly close in time, and it is his view that the indices based on the number data and families accommodated "reflect rather faithfully the actual physical volume of construction".² When Professor Long's index of number for total new building is graphed for comparison with the London index, a striking relationship is immediately evident. While both indices display the cycles which Professor Long has described as "great sweeps of enormous height and depth that last from trough to trough, on the average almost twenty years",³ the trends of activity shown by the two indices are in opposite directions over, say, any ten-year period: particular annual movements may be in the same direction but the long cycle movements are opposed. Building in the U.S. cities seems to have reached its lowest recorded level in 1880, whereas this is the peak year of the whole London series down to 1914. Again, 1871 marks a particularly low level of activity in London, and a very high peak in the U.S. cities (Philadelphia, Manhattan and Bronx in that year).

Evidently, this relationship displayed by the indices of building in London and those in the U.S. cities cannot be explained by any direct connection between the constructional industries in the two countries. Building is essentially a local industry and, as Dr. Cairncross has observed, has a local equilibrium.⁴ On the other hand, as a producer of capital goods, and durable consumers' goods, it depends for its activity to a high degree on new investment. It is in the history of investment in the nineteenth century that we may expect to find an explanation of the inverse correlation of the American with the British figures. Dr. Cairncross⁵ and Professor Rostow⁶ have both noted comments by observers before 1914 on the tendency of British investors to turn to property as a safe outlet for their funds, after periods in which expectation of high returns on foreign investments had been disappointed. We also know that British capital exports were associated with more than average commercial activity in, and emigration to, the economically less developed countries, to which much of that capital went. A comparison of the graph of Professor Paul H. Douglas's estimate of capital exports⁷ with the graphs of the two building indices, suggests that it was capital exports from the U.K. which linked building in London and the U.S.A. in the way

¹ *Loc. cit.*, p. 139.

² *Ibid.*, p. 138.

³ *Ibid.*, p. 129.

⁴ Cairncross: *loc. cit.*, p. 1.

⁵ *Ibid.*, p. 13, footnote 7. c

⁶ W. W. Rostow: *British Economy of the Nineteenth Century*, 1948, p. 205.

⁷ Paul H. Douglas: "An Estimate of the Growth of Capital in the U.K. 1865-1909", *Journal of Economic and Business History*, Vol. 2, August, 1930.

already described. Capital exports were also subject, it seems, to long cyclical movements, and, generally speaking, when their tendency was upwards, building activity in the U.S. cities was in the same, and in London in the reverse, direction. Conformity of all the annual movements in the three series to the pattern of relationships outlined, cannot be shown; nor is strict conformity necessary to our purpose. All that is suggested is that the long cycles in building in the U.S. cities and in London reveal a correlation with changes in the level of British capital exports—in the one case positive, in the other negative—sufficiently close to justify the supposition that the relation is not merely a random one.¹

In general terms, a limited explanation of the forces behind this relation seems obvious enough. Emigration and capital exports tended to reduce both the demand for new building, and the expectation of profitably supplying it. The prospect of relatively high returns on foreign investments, and the demands of export trades—particularly the capital goods industries—for new finance, reduced the flow of funds into the property market, the more surely as the well-recognised “stickiness” of rents made it unprofitable to build when the rate of interest and other costs were relatively high. Something of this kind seems to have occurred in the London building industry between 1868 and 1873, a period in which the investment goods industries and capital exports were booming. Professor Rostow has described the years 1872-3 as an almost classic case of full employment, with bottlenecks appearing especially in the markets for labour and coal.² But London building shows no trace of this boom in activity; exactly the reverse, in fact.

In the case of the American cities, at least in the earlier part of the period from 1856 to 1914, British capital exports at an unusually high level were to a large extent connected with bursts of new investment in the U.S.A., especially in railways. The unearned increment of income represented by capital imports, with a multiplier effect on income that was, no doubt, considerable, and the concurrent arrival of immigrants in larger numbers than usual, created both an increased demand for, and the resources to supply, new homes, public utilities and, to a lesser extent, new industrial buildings.

At this point, it seems desirable to bring into the picture already outlined the figures of building in Glasgow made available by Dr. Cairncross.³ These are the only other British statistics at present to be had, it seems, and it is important to ascertain how far London's and Glasgow's building trades shared the same experience. The Glasgow figures of the value of all plans passed by the Guild Court have been graphed on a logarithmic scale. It is clear that, even making a

¹ The coefficient of correlation between U.K. capital exports and the London Surveyors' Fees is -.50. Between U.K. capital exports and the Index of Building in 29 U.S. Cities it is +.69. I am indebted to Mr. Alan Stuart for these calculations.

² W. W. Rostow: *op. cit.*, p. 79.

³ *Loc. cit.*, p. 15.

rough allowance for the fall in money costs, there was a considerable decline in the annual volume of physical construction between 1878 and 1881, and that building activity remained at low levels until recovery began in the early 'nineties. Why, then, did Glasgow fail to share the boom which London had in the years around 1880? And why is it that from the early 'nineties down to 1914 the secular trend of building in the two cities became very similar? The answer is, I believe, to be found in the contrasting economic and social structures of the two cities, particularly marked in the earlier years, and decreasing as the years passed.

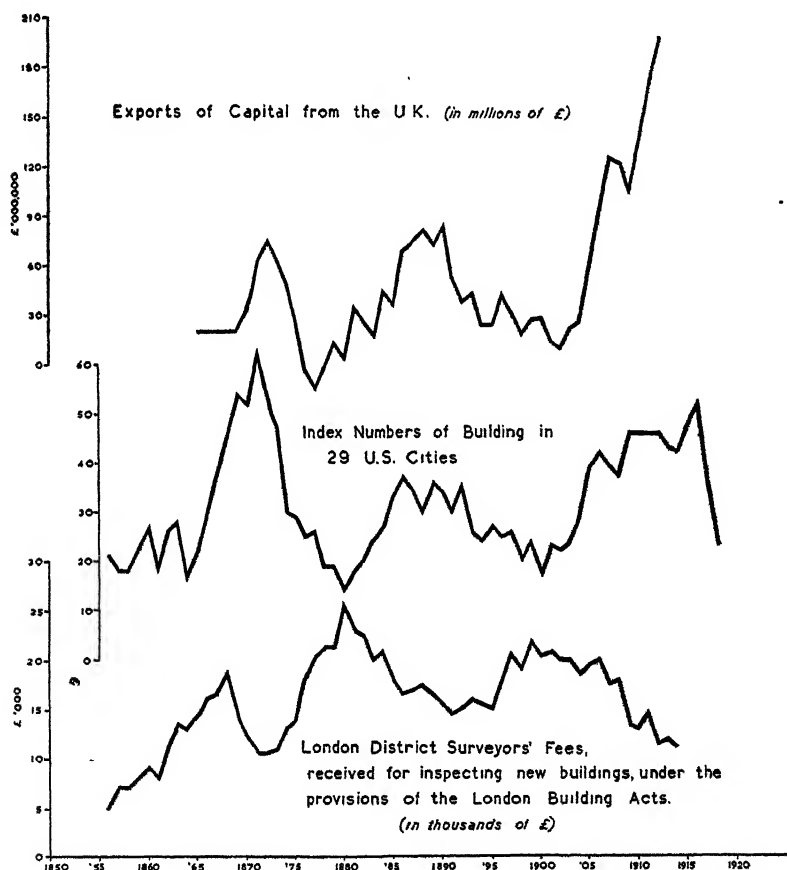
Glasgow, dependent on capital goods industries—shipbuilding, iron and steel, and engineering—and relying, as a port, upon exports to an unusual degree, experienced the full force of the early years of the Great Depression. As Professor Rostow has pointed out, although profits were low, and prices declining, the technical revolutions continued at a rapid pace in the basic industries. In the 1870's and 1880's these industries were still largely controlled by family groups and capital for development was not raised nationally but, rather, locally, and especially by the ploughing back of profits. In these circumstances, and with unemployment somewhat higher, there can have been in Glasgow of the later 'seventies small free investable funds and little incentive to put such as existed into property.

By contrast, London was a city with diverse industries; it produced mainly consumer goods and these for the home market; and it was the principal importing city in a period when imports were rising. As the seat of government with a large salaried and professional class it was prolific of savings, and it had ready access to those parts of England where the rentier flourished. On the other hand, there was in London a strong demand for funds for investment in property, not only by private individuals but also by such bodies as the London School Board and the Metropolitan Board of Works. In short, London had an investment surplus which went into building after the foreign investment failures of the early 'seventies, whereas Glasgow had no substantial capital for investment in property at this time. That the two sets of data come into fairly close conformity from the middle nineties to 1914 is, probably, an indication of the increasing diversity of Glasgow's industries, of the completion of the technical revolution in the basic industries, particularly shipbuilding, and of an integration of the domestic capital market connected with the spread of the public company.¹

What, then, is the general impression left by a consideration of these statistics of building and capital exports? It is, I think, in the first place, that London building was rather the poor and somewhat dull relation in the nineteenth-century family of investment oppor-

¹ As a contributory factor to the low level of building in Glasgow between 1878 and 1881, we may note the failure of the City of Glasgow Bank in 1878, but this failure can hardly account for the longer period of stagnation, from 1878 to 1892.

tunities. It was, however, like many other dull things, felt to be safe, and when the brilliant promise of foreign investment was periodically falsified by events, the British investor turned to property. In the United States, on the other hand, building seems to have had its place in the forefront of the periodic bursts of investment activity that marked the opening up of the new land.



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| Year | LONDON | | Export of Capital from U.K.—in terms of 1865 Price Level (b) (£ million) | U.S.A. | GLASGOW |
|------|--|--|--|--|---|
| | District Surveyors' Fees for New Buildings £ | New Houses in Metropolitan Police District (a) | | Index of Number of Total New Building in 29 U.S. Cities* (c) | Annual Value of all Building Plans passed (d) (£ '000) |
| 1856 | 4,936 | | | 21 | |
| 1857 | 6,729 | | | 18 | |
| 1858 | 6,964 | | | 18 | |
| 1859 | 8,219 | | | 22 | |
| 1860 | 9,039 | | | 27 | |
| 1861 | 8,266 | | | 18 | |
| 1862 | 11,138 | | | 26 | |
| 1863 | 13,311 | | | 28 | |
| 1864 | 12,754 | | | 16 | |
| 1865 | 14,433 | | 19.8 | 22 | |
| 1866 | 16,122 | | 20.2 | 29 | |
| 1867 | 16,473 | | 20.3 | 38 | |
| 1868 | 18,344 | | 20.5 | 47 | |
| 1869 | 14,091 | | 20.2 | 54 | |
| 1870 | 12,106 | | 32.0 | 52 | |
| 1871 | 10,487 | 8,693 | 62.3 | 62 | |
| 1872 | 10,424 | 11,179 | 75.2 | 52 | |
| 1873 | 11,054 | 7,687 | 63.1 | 47 | 1,211 |
| 1874 | 13,120 | 7,764 | 48.8 | 30 | 1,335 |
| 1875 | 14,018 | 10,023 | 25.5 | 29 | 1,826 |
| 1876 | 17,873 | 12,938 | - 3.2 | 25 | 2,125 |
| 1877 | 20,523 | 14,410 | - 15.2 | 26 | 1,564 |
| 1878 | 21,553 | 17,127 | - 1.4 | 19 | 756 |
| 1879 | 21,608 | 21,589 | 12.9 | 19 | 432 |
| 1880 | 25,590 | 24,945 | 4.2 | 14 | 355 |
| 1881 | 23,221 | 26,170 | 34.8 | 18 | 308 |
| 1882 | 22,483 | 23,310 | 25.4 | 20 | 379 |
| 1883 | 20,137 | 21,110 | 17.9 | 24 | 595 |
| 1884 | 20,894 | 18,428 | 43.9 | 27 | 697 |
| 1885 | 18,059 | 15,754 | 37.0 | 33 | 349 |
| 1886 | 16,501 | 12,252 | 69.1 | 37 | 395 |
| 1887 | 17,218 | 12,478 | 74.2 | 34 | 425 |
| 1888 | 17,614 | 12,426 | 81.0 | 30 | 390 |
| 1889 | 16,406 | 11,829 | 72.8 | 36 | 686 |
| 1890 | 15,449 | 10,935 | 84.7 | 34 | 428 |
| 1891 | 14,545 | 12,105 | 50.5 | 30 | 591 |
| 1892 | 15,066 | 11,200 | 37.4 | 35 | 918 |
| 1893 | 15,917 | 12,830 | 42.4 | 26 | 1,331 |
| 1894 | 15,406 | 12,874 | 23.0 | 24 | 1,275 |
| 1895 | 15,100 | 13,141 | 24.5 | 27 | 1,467 |
| 1896 | 17,487 | 16,894 | 42.5 | 25 | 1,290 |
| 1897 | 20,432 | 18,529 | 29.0 | 26 | 1,866 |
| 1898 | 19,117 | 24,838 | 18.2 | 20 | 2,107 |
| 1899 | 21,947 | 27,381 | 27.6 | 24 | 2,017 |
| 1900 | 20,733 | 25,161 | 28.9 | 17 | 1,900 |
| 1901 | 21,157 | 27,174 | 13.3 | 23 | 1,559 |
| 1902 | 20,103 | 25,480 | 10.9 | 22 | 2,550 |
| 1903 | 19,803 | 26,420 | 22.2 | 24 | 2,261 |
| 1904 | 18,614 | 23,269 | 26.3 | 29 | 2,119 |
| 1905 | 19,494 | 21,970 | 60.1 | 39 | 1,304 |
| 1906 | 19,986 | 21,415 | 96.2 | 37 | 1,440 |
| 1907 | 17,634 | 19,211 | 126.9 | 46 | 898 |
| 1908 | 17,981 | 13,377 | 124.3 | 46 | 895 |
| 1909 | 13,591 | 13,343 | 105.4 | 46 | 903 |
| 1910 | 13,144 | 11,757 | 140.3 | 46 | 877 |
| 1911 | 14,326 | 10,027 | 174.7 | 46 | 738 |
| 1912 | 11,403 | 8,006 | 200.0 | 46 | 577 |
| 1913 | 11,848 | 8,579 | | 43 | 993 |
| 1914 | 11,205 | 8,299 | | 42 | 1,052 |

(a) J. C. Spensley, *loc. cit.*, p. 210.(b) Paul H. Douglas, *loc. cit.*(c) C. D. Long, *op. cit.*(d) A. K. Cairncross, *loc. cit.*

* 1920-1930 = 100.

The Rubber Industry¹

By FREDERIC BENHAM

THE rubber tree is one of the so-called "economic trees". This group includes cocoa, coconut, citrus, and a number of other trees yielding fruit or nuts or bark or latex. Each has its own foibles—for example, young cocoa usually needs the sunshade of another kind of tree, but all have broadly the same economic life-history.

First, the land must be cleared and prepared for planting. As a rule, the young trees must be protected from animals. Most types begin to bear only after five to seven years—seven in the case of rubber. Hence there is a considerable time before they are "established" and begin to yield some return on the original investment.

Then comes the long period of yielding. As a rule the yield increases for the first few years, reaches its peak about ten or twelve years after planting, stays there for about fifteen years, and then begins to fall off. A tree may continue to yield something until it is over fifty or even a hundred years old, unless it dies from disease or is blown down in a storm, but trees will probably be abandoned or replaced by something better long before that.

During this period, the income from the trees is of the nature of economic rent. Yields may vary with the amount of manuring or weeding, but the cost of extracting some yield is often quite low. Nutmegs, to take an extreme case, fall to the ground when they are ripe and have only to be picked up. Hence large outputs are likely to continue to come forward even when prices are very low. An example is the large quantities of rubber which continued to come forward from the Netherlands East Indies during the 'thirties even when the net return to the native producer was less than twopence a pound. On the other hand, prices may remain very high for a long time because, although output from existing trees can be somewhat increased, it takes several years for new trees to be planted and to come into bearing. This happened with rubber in the late 'twenties. It will never happen again. So long as a fairly good substitute can be produced synthetically for about 10d. or 11d. a pound, the price of natural rubber will not remain for long above say 1s. a pound at most.

Finally there is the problem of replacement, by replanting on the same land or by new planting on land not at present under that crop. Clearly, a producer who wishes to maintain his capital intact must

¹ *The Rubber Industry*, by P. T. Bauer. Published by the London School of Economics and Political Science (Longmans Green and Co.), 1948, pp. 404. Price 25s. net. See also: *Report on a Visit to the Rubber Growing Smallholdings of Malaya, July–September, 1946*, by P. T. Bauer. H.M.S.O., 1947, pp. 92. Price 4s.

set aside funds out of his income from his trees, whether he finally reinvests them in the same type of crop or in something else. A longish period of high prices, which seems likely to continue, may lead to a large amount of new planting. Thus the high price of rubber under the Stevenson Scheme of 1922-28 led to heavy planting in the Netherlands East Indies, of which we are now seeing the fruit. On the other hand, a similar period of low prices may result in little new planting or replanting and eventually in a scarcity of the product.

The whole subject bristles with technical problems. What are the most favourable soils and climates? What is the most suitable planting material for a particular district? How many trees should be planted to the acre? How can various diseases be prevented or stamped out? What methods of manuring, weeding, and cultivation generally should be followed? What is the best method of obtaining the product? A host of such questions should be answered. Not infrequently nobody knows the answer for certain. Planters are naturally reluctant to risk their capital in radical departures from established practice, although in fact the well-trodden path may be the road to ruin. A good example is the "clean weeding" which rubber estates insisted on until late in the twenties. It is now agreed by all that clean weeding means loss of soil fertility, mainly through erosion, and that some type of cover is far better. Again, the long life of these "economic trees" means that a long period is needed for controlled experiments; the effect of a certain course of action should be known over the whole effective life of the tree. The best number of trees to the acre is a case in point. Dr. Bauer has an interesting Appendix on this question, and his view that the optimum density is much higher than current estate practice may well be right. But many factors are involved. Dr. Bauer mentions most of them but not all; for example, he omits the fact that with a dense stand the number of tappable trees is reduced owing to the slowness with which the trees dry after rain. Moreover, he was unduly impressed by the high yields quoted to him in 1946 by smallholders, who have dense stands; subsequent statistics leave no doubt that these high yields were either overstated or temporary "flush yields" following the enforced rest of three or four years during the Japanese occupation. I repeat that he may well be right, but we shall not know until controlled experiments, such as that begun several years ago by the Rubber Research Institute of Malaya, have continued for a few years more. One moral to be drawn from our present state of ignorance, or at least imperfect knowledge, on such subjects is that public research into "economic trees" is highly desirable and likely to be of great value.

Another host of technical questions present themselves on processing, marketing, manufacturing, and development of new uses.

It follows that an economist who sets out to study an industry such as the rubber industry, must perform an immense amount of spadework in acquainting himself with all these technical questions

as well as with the more strictly economic data. This Dr. Bauer has done, and he deserves our gratitude. It is seldom that an economist of his ability finds the time and opportunity to learn enough about an industry to make a really illuminating economic analysis of it. I believe that some of his facts and judgments are wrong, and most of this review will be critical, but my general feeling about his work is one of unstinted admiration. He has studied nearly all the relevant documents and periodicals, masses of them; the amount of work he got through during his brief visit to Malaya is quite remarkable; and his excellence as an economic analyst is beyond dispute.

His arguments and data are presented lucidly and well, but perhaps he covers too much ground in a single volume. It might have been better to write a book dealing solely with the economic problems of natural rubber, leaving out the history of the industry, except for purposes of illustration. A companion volume could have given a fairly brief but complete history of the industry, and a separate monograph could have discussed the 1934 Restriction Scheme in detail. Instead we have a short account of the early history, practically nothing about the Stevenson Scheme, a good deal about rubber during the great depression, nearly half the book on the 1934 Restriction Scheme, and chapters on the structure of the industry, labour supply, technique, synthetic rubber, and prospects and policies, with appendices thrown in for good measure.

II

The central theme of the book is that smallholders are more efficient producers than estates but have been badly treated in every way. They have been the neglected step-children. They received far less than their fair share, and the estates correspondingly more, of the quotas under the Restriction Schemes. The prohibition of new planting under the 1934 Scheme discriminated against them, and in favour of estates; if continued long enough it would have spelt their death. This theme is repeated with embellishments in the *Report*, which is an account of Dr. Bauer's ten weeks' visit to Malaya in the summer of 1946.

The official line of division between estates and smallholdings has generally been drawn at 100 acres. A holding of 100 acres or more is classed as an estate; a holding of less than 100 acres is classed as a smallholding. At the end of 1929 there were some 3,995,000 acres (including 1,775,000 in Malaya and 1,355,000 in the Netherlands East Indies) under estates and some 3,640,000 acres (including 1,170,000 in Malaya and 1,800,000 in the Netherlands East Indies) under smallholdings in Asia, which produces some 95 per cent. of world output. Since 1929 there has been some expansion and a revised estimate for Netherlands East Indies smallholdings is 3,200,000 acres; if this is accepted, smallholdings now account for well over half the total world acreage.

Clearly there can be little difference between a so-called smallholding of just under 100 acres and a so-called estate of just over 100 acres. But most estates are fairly large, over 1,000 acres, and are owned by European companies; and most smallholdings are a very few acres and owned locally. Since Dr. Bauer wrote, the following information about Malayan smallholdings has been obtained from Land Offices and published in the Rubber Statistics Handbook of Malaya. There are over 345,000 smallholdings of under 25 acres with a total acreage of 1,100,000 acres and rather more than 7,000 medium holdings of 25 to 99 acres with a total acreage of 285,000 acres. The typical Malayan smallholder therefore has 3 acres or less. Dr. Bauer was under the impression that larger holdings form a bigger proportion of the Malayan smallholdings than in fact they do; the actual figures strengthen his general argument.

In the first place, 3 acres is generally supposed to be about the size which a man and his family can work on their own. Dr. Bauer is therefore right in assuming that the money costs of the typical smallholder are very low, as he does not have to employ paid labour.

In the second place, the smaller the holding the more valid is Dr. Bauer's contention that it is difficult to replant a part of it. He says that it would be technically impossible, as the young trees would not get enough sunlight. This is disputed; it is claimed that at a distance of more than a chain the "shading out" is negligible. But clearly replanting is more difficult on a really small holding than on one of over, say, ten acres. There is also the economic obstacle. This is not so much the money cost of clearing the land. Dr. Bauer is a little illogical when he implies that smallholders who do the work of current production themselves would have to employ paid labour for clearing and in any event the cost of clearing would equally have to be met for new planting on land now under forest or jungle; moreover, the cost of clearing is often more than covered by selling the old trees as fuel. But the loss of income from the trees destroyed is more than most owners of really small holdings would be prepared to face. There can be no doubt that new planting, provided that suitable land is available not too far away, is much better for smallholders than replanting; they can continue to tap their existing trees for their livelihood while the new ones come into bearing.

I divide my comments into sections; on the 1934 Scheme, on the special question of smallholders' quotas under that Scheme, on elasticity of supply, on the relative efficiency of estates and smallholdings, and on Dr. Bauer's *Report* and the future of Malayan rubber.

III

Dr. Bauer is fiercely critical of the Restriction Scheme of 1934. *The History of Rubber Regulation 1934 to 1943*, edited by Sir Andrew McFadyean for the International Rubber Committee, which administered the Scheme, gives a fairly full account of it but Dr. Bauer

disagrees strongly with the general standpoint of that work. He has therefore told the story over again, stressing those aspects and consequences of the Scheme which he considers bad. He has had full access to the papers of the Committee, and has brought to light a number of interesting facts.

Under the Stevenson Scheme, about which Dr. Bauer says little because he is in general agreement with the account of it given by Mr. Rowe, British territories alone bore the whole burden of restriction. As the Scheme succeeded in raising prices for some years, production elsewhere was stimulated and the long-run effect was to push prices down. The International Scheme included all important producers, and especially the Netherlands East Indies. It covered 97 per cent. of world exports. It was therefore much more efficient as an instrument of monopoly.

The function of the Committee was "to adjust in an orderly manner supply to demand and maintain a fair and equitable price level which will be reasonably remunerative to efficient producers". Sir Andrew McFadyean claims that they succeeded. They provided "ample supplies of rubber at prices which were not out of line with prices in general". During the $7\frac{1}{2}$ years (June, 1934, to November, 1941) of regulation they provided for exports of more than 8 million tons, a total which compares with exports of less than 6 million tons in the $7\frac{1}{2}$ years immediately preceding regulation. "The average price throughout the prewar period of regulation was 7.35d. per pound: this is to a decimal point the price which prevailed when the agreement was signed in May 1934".

Dr. Bauer replies, and he is undoubtedly right, that without restriction of output a greater amount would have come forward at lower prices. "After the Netherlands East Indies natives had for two years been producing large quantities of rubber for a total net return of around $1\frac{1}{2}$ d., the minimum which was regarded as yielding reasonable returns to the efficient estate was 8d." (p. 206).

If this were all, it would not necessarily condemn the Scheme. There are several arguments in favour of a price during this period well above the price which would have prevailed under unrestricted competition.

In the first place, rubber is the sole or main source of livelihood for millions of smallholders and wage-earners. A low price would have condemned them to a miserably low standard of living. The Scheme in effect transferred income to them from the ultimate consumers of rubber, who were considerably better off, many of them owning cars.

In the second place, it was desirable to replace old low-yielding trees as soon as possible by new planting or replanting with the much higher-yielding material then becoming available. The low prices of the slump years had left producers no margin for this expensive task. A price well above prime cost was needed to enable them to accumulate the necessary reserves fairly quickly, and also to provide

money for public and private research into discovering which types of improved planting material were most suitable and under what conditions a new stand of rubber trees could be grown successfully on land that had been under rubber for 30 years or more.

In the third place, in a world of monopolistic practices and subsidies there was some excuse for rubber producers, who had been through a very bad time, to combine together to defend themselves.

But the higher price was not all. The main target of Dr. Bauer's attack is the treatment of smallholders. He is firmly convinced that they were, and still are, the "most efficient" producers. He claims that under the Scheme smallholders were given much too small a share, and estates much too large a share, of the quotas. Moreover, the Scheme prohibited new planting (except during 1939-40) whilst permitting a limited amount of replanting. He claims that it is technically difficult or impossible to replant part of a smallholding. Hence, he concludes (p. 215) "the purpose of restriction had become the quasi-permanent maintenance of the high-cost producers. No progress was made towards their gradual elimination; the only class to be eliminated would have been the smallholders, and this through the operation of the planting provisions of regulation; the prospect of the gradual extinction of the lowest-cost producers can hardly be called a desirable aim of regulation".

It can hardly be denied that this Scheme, like most restriction schemes, protected the relatively inefficient producers, both within the class of estates and within the class of smallholders, prevented the more efficient from expanding (except at the cost of purchasing quota rights), and kept out newcomers. Whether smallholders as a class are more efficient than estates as a class is another question, which I shall postpone to Section VI. To what extent their quotas were too low is discussed in the following Section.

The worst feature of the Scheme, on which I agree entirely with Dr. Bauer, is that it forbade new planting. For one year only, 1939-1940, 5 per cent. new planting was allowed, but this concession, as Dr. Bauer explains, was of little value to the small man.

Replanting was permitted until 1939 (when it was allowed freely) only up to 20 per cent. of the existing acreage of each owner, with a maximum of 10 per cent. in any year. It is true that many estates (and medium holdings) took little or no advantage of this permission. In so far as their land was suitable for rubber, and their trees old, this was most shortsighted and foolish of them. But estates wishing to replant more than 20 per cent., and those estates which would have preferred to plant new and more suitable land, were not allowed to do so.

These regulations discriminated against the smallholders, who seldom find it possible to replant. They also put the industry in a strait-jacket, and held up the march of technical progress. They reflected the attitude of the leaders of the industry, who preferred restriction and high prices to expansion on a much lower cost basis.

In 1928 Mr. Ormsby Gore (now Lord Harlech) had written (*Report on a Visit to Malaya, Java, and Ceylon during the year 1928*, p. 148) : "The rubber industry is not yet on a stable basis of costs but is faced with revolutionary discoveries that may treble the output and halve the cost per pound". Even then new planting material was becoming available which would yield 1,000 lb. and more per acre ; since that time considerably better varieties have been discovered and proved.

Surely the right course for the industry, and for the world, was to take advantage of these revolutionary discoveries. It was neither possible nor desirable to replace all old trees by high-yielding planting material overnight. But it should have been done with reasonable speed. True, producers need to continue tapping existing trees for their livelihood while new ones come into bearing. Replanting therefore—destroying existing trees in order to replace them with planting material—must be fairly gradual. Moreover, some land now under rubber is relatively unsuitable and probably not worth replanting. New planting, however, could have gone ahead provided that suitable land was available. The costs of clearing and preparing the land would have had to be met in any event, sooner or later, if the industry was to survive. The possibility of still better planting material in the near future may have caused some hesitation, but if one refuses to take three times the present yield because by waiting for something better one may get four times, why not continue waiting for ever, so long as there is a chance of getting something better still ? There is room for disagreement on timing and methods, but the broad principle is that advantage should be taken of technical progress. The regulations forbidding new planting, together with the decision of many estates not to replant, prevented this. They delayed the application of discoveries which would have given three or more times the yield per acre with relatively little extra effort ; and by so doing they set back the industry, now faced with the competition of synthetic substitutes, for at least ten years.

IV

To what extent did smallholders receive less than their fair share of quotas under the 1934 Scheme ?

There is no doubt whatever that they were heavily under-assessed in the Netherlands East Indies. This was done with the consent of the Netherlands Government on the ground that a Netherlands East Indies native quota anywhere near their capacity would have been so large that it would have wrecked any chance of an agreed scheme. The special export tax imposed to keep down their output reached 59 guilder-cents per kilo. in 1936 ; "in the interior the proportion of the proceeds taxed away exceeded 95 per cent." (p. 115). Incidentally, this meant that other territories received a larger share than they were entitled to on a capacity basis.

Dr. Bauer claims that it is "beyond dispute" that smallholdings were heavily under-assessed in Malaya also. He makes a big point of this, both in his book and in his *Report*, and goes so far as to estimate the loss to Malayan smallholders at the very high figure of £10 million.

He points out that, even so, smallholders were better off than they would have been in the absence of restriction. They enjoyed higher prices, obtained larger incomes for less work, and benefited in various ways from increased Government expenditure (pp. 208-9). "These considerations do not, however", he continues, "alter the fact that the benefits of restriction were very unevenly divided between estates and smallholdings, to the disadvantage of the latter".

He bases this conclusion on the statistics of output from estates and smallholdings before restriction. He says that smallholders should have been given at least 45 per cent. of the total quota instead of the 38 per cent. which was all they received. But the statistics give only an estimate of smallholders' output. The estimate is a derived residual figure: output obtained by estates is recorded and all the rest is attributed to smallholdings. It thus includes any rubber stolen from estates and also any rubber smuggled into the country from Sumatra or elsewhere.

In 1949, for the first time, actual sales by smallholders to dealers were recorded. The figures may not have been complete, but on the other hand they may have included some rubber not originating on smallholdings. For the first quarter they came to only 60,000 tons, 35 per cent. of total output, as against 76,000 tons, 44 per cent. of total output, estimated as smallholders' production by the "residual" method.

If Dr. Bauer is right in thinking that smallholders in the absence of restriction could produce nearly half the total Malayan output, why are they not doing so now? The estates are producing 58 per cent.¹ plus what is stolen from them; the President of the United Planting Association of Malaya recently estimated losses by theft at 10 per cent. of total output, and although that may be an exaggeration there is no doubt that they are very considerable.

Dr. Bauer may well reply that his prediction is coming true; owing to replanting with high-yielding material the estates are gaining ground against the smallholders. There is a good deal in this; between 15 and 20 per cent. of the tappable area of estates is now under budgrafts or clonal seedlings. On the other hand, there was a little replanting by smallholders; some of the estates budgrafts are old and should have been included in 1934 estimates of capacity; the total planted acreage of smallholders is greater, and that of estates less, than in 1934; and some estates are not yet fully rehabilitated.

Taking everything into account, I agree with Dr. Bauer that the smallholders were under-assessed—from ignorance and not from

¹ 58 per cent. is the figure for 1948. For the first quarter of 1949 it fell to 56 per cent. but it rose sharply in April and May.

intention. But I believe that the extent of their "loss" was considerably less than he thinks.

V

During the great depression of 1929 to 1932 the total volume of world agricultural output hardly declined at all despite the very heavy fall in prices. The output of manufactured products fell by more than a third, although—largely for that reason—their prices fell less than those of farm products. It is probably true, as a broad generalisation, that agricultural output as a whole responds only very sluggishly to a general fall in demand. One important reason is that a large part of agricultural output is produced on family farms. Unless the farmer can get another job he is constrained to carry on in order to live, and works as hard as before or even harder despite a fall in the prices of his products and therefore in his income. In manufacturing, where the proportion of wage-earners is much greater than in agriculture, reductions in money wages tend to be resisted, and prices and wages fall less. Broadly speaking, a slump means unemployment in manufacturing and other activities employing mainly paid labour, and lower incomes for farmers and others working on their own account.

These generalisations, however, happen to apply less to rubber-growing than to most branches of agriculture, and Dr. Bauer is rightly caustic about those who have applied them to rubber-growing without bothering to look into the facts. The facts are that the output of rubber fell considerably during the slump and that smallholders' output fell much more than estate output. Total production from the principal countries was 828,000 tons in 1929, when the average London price was 10.3d. per lb. and only 708,000 tons in 1932, when the average London price was 2.3d. per lb. Capacity increased by a third during this period, as young rubber trees came into bearing; in 1932 output was only 61 per cent. of capacity as compared with 94 per cent. in 1929. Dr. Bauer estimates that output per mature acre of Netherlands East Indies "natives" fell from 430 lb. in 1929 to 105 lb. in 1932, of Malayan smallholdings from 480 lb. in 1929 to 385 lb. in 1932, of Sarawak (which is nearly all smallholdings) from 420 lb. in 1929 to 85 lb. in 1932. Estate output per mature acre fell less; in Malaya from 410 lb. in 1929 to 365 lb. in 1932 and in the Netherlands East Indies from 380 lb. in 1929 to 345 lb. in 1932.

He says (p. 28) that estates could be expected to maintain production at a fairly constant rate until the price declined below direct costs, which on the majority of estates were only one-third or two-fifths of total costs; moreover their total costs were reduced by 60 to 65 per cent. (p. 32) between 1929 and 1932. "The supply of smallholders' rubber was more elastic than that of estate output, principally because of the ability of smallholders to turn to alternative sources of earnings" (p. 30).

I have no criticisms of Dr. Bauer's general analysis of elasticity of supply but there are several points, most of which he makes himself, which seem worth stressing.

As Professor Silcock has pointed out¹, "the elasticity of supply of rubber depends, so far as labour is concerned, on the work done by each rubber-producer and also on the numbers engaged in producing rubber". I think the view that a smallholder will strive hard to maintain his standard of living but may take out any improvement largely in the form of increased leisure is correct, at any rate for Malaya. Faced with a fall in the net return for his rubber, the typical smallholder tends to look around to see whether he can do something else which pays him better. He may spend more time on growing rice or vegetables, or fishing; he may get a paid job, possibly (especially in the absence of restriction) on a neighbouring rubber estate. If he cannot find anything better, he may do more work on his own holding, tapping more trees if some were formerly untapped but not, as a rule, over-tapping them. How much work he does tends to vary with his need for cash, and this depends partly on the prices of the commodities which he buys. During the great depression there was a marked fall in the prices of rice and other goods consumed by Asian workers. This helps to explain why estates found it possible to make such large reductions in wages. It also explains why smallholders were not hit so hard as the fall in the price of their rubber suggests.

When the price of rubber is high, on the other hand, the smallholder with a fairly large holding can afford to take on outside workers, either paying them wages or sharing the proceeds. Even the smallholder with a fairly small holding may engage workers who share the proceeds with him on equal terms while he enjoys more leisure than before.

It is thus perfectly possible for smallholders' total output to go down when the price of rubber falls although every smallholder who continues to work his holding does more work than before. As Professor Silcock says, it is mainly the number of workers rather than the work performed by each which determines the total output of smallholders' rubber.

It is not true that a lower price always leads to a fall in smallholders' total output. It did so between 1929 and 1932, but the opposite happened both before and after. This can be illustrated by the output of the Netherlands East Indies "natives". It was greater in 1929 than in 1927, although the return to them had fallen by nearly half. As Dr. Bauer himself points out (p. 116), by the spring of 1935 the return to them was depressed below the 1932 level but their exports "were running at a rate almost treble that of 1932". Again, his Table on page 386 shows that they were receiving net only 3.8 guilder-cents per kilo. in 1936 as against 8.6 in 1935, yet their exports were greater in 1936. .

¹ T. H. Silcock: "A Note on the Working of Rubber Regulation", *Economic Journal*, June, 1948, p. 228.

Clearly the total output of smallholders does not vary solely with the price they get for their rubber. Another important factor, which Dr. Bauer stresses, is changes in capacity. Mature acreage was increasing continuously, especially in the Netherlands East Indies, during this period, and tending to give total output an upward trend. Dr. Bauer also mentions (p. 116) "the low cost of living, the fall in the prices of other products". I am puzzled by the suggestion that this partly explains the increase in output after 1932; does it also explain the fall in output before 1932? Another major factor is the availability of other occupations, or means of livelihood; this may vary between places and times.

I believe that, at any rate in Malaya and Sarawak, smallholders who are not desperately in need of cash may hold back their output for some months if they think that prices are unduly low and likely to rise later. I suspect that this partly explains the very low level to which their output fell in 1932 and the subsequent rise in 1933. But he is a bold man who ventures to predict smallholders' output in the short run, even if he knows local conditions at firsthand.

VI

Dr. Bauer again and again asserts that smallholders are "more efficient producers" than estates.

It is true that the "elaborate hierarchy" (pp. 200-201) of persons drawing salaries, fees, and wages from many estates appears to compare very unfavourably with the smallholdings, where the smallholder and his family do all the work and get the same yield per acre as estates. The analysis of estate costs is one of the few subjects which Dr. Bauer did not investigate thoroughly; had he done so, he might have found that the various "overheads" are a smaller proportion of total costs than he supposed. I am always rather suspicious of academic critics who think that business men could obtain the same output more cheaply. There may be something in Dr. Bauer's remarks (p. 11) about the grip of the Agency Houses, but he does not pursue the subject in any detail. On the other hand, it is relevant to note that some estates are miniature towns, providing and maintaining their own roads, housing, schools, medical attention, water, electricity, and so forth. The services which they thus render to the community should be given some weight when considering their efficiency.

Dr. Bauer's main point is that the money costs of smallholders are very low, because they and their families do the work. But he knows perfectly well that there are the opportunity costs of what they can earn in alternative occupations. At present prices the typical Malayan smallholder, with about 3 acres, earns only about £1 a week, which does not give much of a livelihood for himself and his family. He could earn considerably more if he chose to work on an estate. If the efficient unit is the one which can provide its workers with the higher incomes, the estate wins easily over the smallholding.

No doubt the supply price of rubber from smallholdings is very low. In other words, many smallholders will continue to tap their trees in order to keep themselves from starving unless they can find something better to do. But it is not a long-run supply price. The smallholder seldom makes provision for replacing his trees when their yields fall off whereas the estate usually does.

Dr. Bauer rendered a service by stressing the fact that new planting in Malaya was still prohibited in 1946. In April 1947 the prohibition was removed. High-yielding planting material is available at a nominal price to smallholders and they can obtain land on easy terms. But often there is no suitable land near their homes. Most of them seem unwilling to move and to undertake the labour and expense of clearing and planting new land. In any event, they want something to live on while the new trees come into bearing. (It may be that the "hedgerow" system, with wide spaces in which foodcrops can be planted between rows of trees, may be a partial solution; this throws a new light on the "best" number of trees per acre.) It is not so certain as Dr. Bauer assumes that replanting is technically impossible on a small holding, but even where it is possible the holder of less than, say, ten acres is reluctant to face the loss of income from destroying some of his existing trees. In fact, therefore, very little new planting or replanting is being done by smallholders. Unless the Government can find some practicable ways of inducing them to provide for their survival, the "more efficient half" of the industry will gradually disappear, at any rate in Malaya. Their future is thus a very serious problem, and to proclaim that they are more efficient, because their money costs are lower than those of most estates, merely confuses the issue.

VII

During his visit to Malaya Dr. Bauer made an extensive tour of smallholdings and had numerous interviews. However strongly one may disagree with some of his conclusions (for example on yields) there is no doubt that he has written a most interesting and valuable *Report*.

It is marred by the section in which he attacks the Rubber Research Institute, which he says serves estates only and has actually impaired the interests of the smallholder. This is not true; the Institute renders most useful services to the smallholders as well as to the estates. I am astonished that Dr. Bauer denies that the research work of the Institute benefits the smallholders. He agrees that improved planting material is of vital importance to them; who could carry out the necessary experiments and make the material available to them if the Institute did not exist? He thinks that research into technical problems is of no use to the smallholder, but this is quite wrong. A leading example, to which he frequently refers, is methods of tapping and bark consumption. He points out that on many smallholdings the rate of bark consumption is not excessive although all bark up

to the height of 60 inches is regarded as tappable. But this does not mean that standards of tapping cannot be improved. For example, experiments have shown that just as much latex can be obtained by removing $\frac{3}{4}$ inches of bark per month as by removing $1\frac{1}{4}$ inches when tapping alternate daily on half circumference. Again, it has been shown that the height of tapping on seedling trees has a marked influence on yield; the yield at 50 inches may be only 60 per cent. of the yield at 20 inches. Surely it is obvious that an improvement in tapping technique which will lead to a reduction both in the rate of bark consumption and in the height of tapping will result in increased yield per tapper and per acre, whether the trees happen to be on a smallholding or on an estate. In the same way, most improvements benefit all producers, whether large or small. It is true that the small man cannot himself take advantage of some methods of improving the product, but central (possibly co-operative) factories can, and the small man will benefit through improved sales.

At the time of Dr. Bauer's visit, the country had been re-occupied for less than a year. The Smallholders' Advisory Service of the Institute was below strength and the instructors had had four years without training. Before the war, it was doing good work; and in 1941 more money was spent on visiting smallholdings than on visiting estates. There is a real difficulty, however, which exists whenever there are large numbers of smallholders. It is the difficulty of providing them with advice and help without an impossibly large expenditure of money. How many instructors would be needed to pay frequent visits to 350,000 smallholdings, and how much would it cost? The only course is to resort to other methods, as the Institute does, to supplement or replace actual visits by instructors; pamphlets in the vernacular languages, travelling caravans, demonstration plots, possibly cinematograph films. To some extent, the smallholders must come to the instruction instead of the instruction being supplied to each one of them separately on his own holding.

On the future of the industry, Dr. Bauer says much of interest, both in his book and in his *Report*. I agree entirely with him that a new equilibrium should be possible some time in the future, with much higher yields, implying lower costs, lower prices, and greatly expanded consumption. The quality and cleanliness of the product must also be improved. In order to compete better with "tailor-made" synthetic, natural rubber also must be produced with specified properties instead of being sold on appearance alone.

The path to the new equilibrium lies through new planting and replanting with high-yielding material. Dr. Bauer seems a little biassed against replanting; if a good second stand can be obtained without excessive manuring, why not replant? How to induce and assist the smallholders to plant is a problem, for it is unfortunately not true that suitable land is available throughout western Malaya. The suggestion, repeated by Dr. Bauer, that the Government should clear

large areas, plant them, and let them out in lots to smallholders, would probably be too expensive; if the Government should do this for some, why not for all who want it?

At the time of the 1934 Restriction Scheme there was a possible argument for forbidding new planting and limiting replanting. Granted that the higher-yielding trees would greatly reduce costs, they would also increase the output of rubber and tend to bring down its price. There was therefore a case, from the standpoint of producers, for going slow: total costs with the new trees might be less than prime costs with the old, but the replacement of old trees by new would reduce the price of the product. Nevertheless I believe that going slow on new planting and replanting was a shortsighted policy then. It would be a hopeless policy now. For the output of Indonesia is growing and cannot be kept down. Dr. Bauer reminds us that the official estimate of the Indonesian "native" planted area, much of it high-yielding, is 3,200,000 acres. This may be an over-estimate; current "native" output is less than 350,000 tons a year. But there can be little doubt that Indonesian and other output will expand as political conditions become more settled. The only hope for the Malayan industry is to get high enough yields to compete on a lower cost basis than at present. It is also vitally important to improve the quality of the rubber, possibly by the establishment of central factories for the processing of latex.

The path to the new equilibrium may be hard and thorny. At present the prime costs of Malayan estates average between 7d. and 8d.; although some are much lower than this average, others are well above it. A further sharp fall in prices would place the latter in difficulties. With rice and other consumer goods much dearer than before the war, it will be difficult to reduce wages substantially. A number of estates may have to close down or to go on a "care and maintenance" basis; this is already happening in Ceylon. There may be considerable unemployment. And lower prices would mean a very inadequate income for most smallholders.

Yet rubber must continue to be the main support of the Malayan economy. Seventy per cent. of the cultivated area is under rubber, and much of this is not very suitable for other crops. As Dr. Bauer shows, rubber gives a better return than rice or most other products. It is a very suitable crop for the small man and he likes it; it provides him with a regular non-seasonal cash income without too much work. And rubber employs, directly or indirectly, at least a third of the working population.

Hence Dr. Bauer is absolutely right, in my view, in stressing the need for new planting or replanting to enable the industry to survive. But it is to be hoped that some means (such as the buffer stock which he suggests on pages 335-8) can be found of providing relative stability during the difficult years of transition which lie ahead.

Singapore.

A Note on the Interpretation of Index Numbers

By I. M. D. LITTLE

THE following is a formal footnote to my article, "The Valuation of the Social Income".¹ Let us assume:—

- (i) an unchanging population of eternal and perfectly consistent 'individuals'.
- (ii) changing quantities of a fixed number of different (incommensurable) kinds of 'goods', all of which are consumed by 'individuals'.

Given that the p 's refer to market prices, and the q 's to the aggregate quantities of the different goods, what does the formula $\Sigma p_2 q_2 \gamma / \Sigma p_2 q_1$ tell us? On the above assumptions, as Mr. Hicks has shown,² it tells us that no redistribution of the goods consumed in the first period could have sufficed to make everyone as 'well off' then, as they in fact were in the second period. (More precisely, $\Sigma p_2 q_2 \gamma / \Sigma p_2 q_1$ implies that, given every 'individual's' second period consumption, the distribution of the quantities of the first period could conceivably have been such that the formula $\Sigma p_2 q_2 \gamma / \Sigma p_2 q_1$ would have held for every 'individual'—or it is inconceivable that it should have been such that $\Sigma p_2 q_2 < \Sigma p_2 q_1$ for every 'individual'.) Mr. Hicks considered that this fact sufficed for one to say that real social income had increased. In the article cited, and for the reasons given, I found cause to reject this criterion.

Subsequently, and elsewhere,³ I have proposed a sufficient criterion for 'an increase in economic welfare' or 'an increase in real income', as follows:—(a) the distribution of welfare (or real income) must not be worse, and (b) the potential losers by a change from one situation to the other must not be able profitably to bribe the potential gainers to oppose the change. Now Mr. Hicks showed, in effect, that from the formula $\Sigma p_2 q_2 \gamma / \Sigma p_2 q_1$ it follows, given our assumptions, that the second part (b) of the above criterion is satisfied. In other words, the fact that no redistribution of the quantities of situation I could conceivably have sufficed to make $\Sigma p_2 q_2 < \Sigma p_2 q_1$ for every 'individual', implies that the potential losers by a change from situation I to situation II could not have profitably bribed the potential gainers to oppose the change. (If $\Sigma p_2 q_2$ remains greater than, or equal to, $\Sigma p_2 q_1$ for any 'individual', then he would not oppose the change.)

¹ *Economica*, February, 1949.

² "The Valuation of the Social Income", *Economica*, 1940.

³ "The Foundations of Welfare Economics", *Oxford Economic Papers* (New Series), Vol. I, No. 2, June, 1949.

Consequently the change from the first to the second situation fulfils the above criterion if it is also judged that the distribution of economic welfare is not worse in the second situation. It must be noted that the base-reversal test is here irrelevant. A not unfavourable redistribution *plus* $\Sigma p_2 q_2 \succcurlyeq \Sigma p_2 q_1$, entails, on the above criterion, a higher real income even if we also have $\Sigma p_1 q_1 \succcurlyeq \Sigma p_1 q_2$.¹ This latter formula implies that the potential losers by the reverse change, back to situation I, could not profitably bribe the potential gainers; but this is irrelevant *unless* the distribution of welfare, or real income, is no worse in situation I than in situation II.

Accordingly, I propose the following formal sufficient criteria:— (i) real income (or economic welfare) has increased if distribution is no worse, and if $\Sigma p_2 q_2 \succcurlyeq \Sigma p_2 q_1$; (ii) real income (or economic welfare) has decreased if distribution is no better, and if $\Sigma p_1 q_1 \succcurlyeq \Sigma p_1 q_2$. Since the above 'quantity indices' may be arrived at by deflating income totals by a Laspeyre and a Paasche price index, respectively, it can be concluded that it is formally correct to use the Laspeyre index if it is thought that distribution has changed for the better, and the Paasche if it is thought that it has changed for the worse. These conclusions are, of course, purely formal. No such significance in terms of actual individuals could be attached to any indices.

In my article I was concerned to show that welfare, or real income, could only be said to be even potentially greater, in the second period, if the goods of the second period could have been redistributed in such a way that $\Sigma p_2 q_2 \succcurlyeq \Sigma p_2 q_1$ would have held for every individual. But the aggregate index-number criterion does not suffice to prove the possibility of such a redistribution. I held, however, that, if the inequality were large enough, it could at least be said to be evidence in favour of there being, in the above sense, a potential increase in real income. In other words it could, at best, be said that potential real income had probably increased. This indefiniteness (which results from dealing with potentialities about which little is known) is removed, given our assumptions, by the criterion proposed above. We need no longer be concerned with the possibility that everyone in the second period could be made, by redistribution, better off than he actually was in the first period, because we have introduced the value judgment that distribution of welfare is at least no worse in the second period than it was in the first period. Given our assumptions, we can now deal with certainties, instead of with possibilities. (But if the assumptions are relaxed, then, I think, the size of the inequality again becomes important.)

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¹ For an 'economic man', $\Sigma p_2 q_2 \succcurlyeq \Sigma p_2 q_1$ entails $\Sigma p_1 q_1 < \Sigma p_1 q_2$. But this entailment does not hold when the index-numbers refer to a community of economic men.

Book Reviews

✓ *Theories of Welfare Economics*. By HLA MYINT. The London School of Economics and Political Science. Longmans, Green & Company, London. 1948. xiv + 240 pp.

This book will challenge the interest of economic theorists everywhere. Dr. Myint has been privileged to study under two great teachers, Hayek and Hicks, and he has brought to his researches an obviously judicious, analytical, and articulate intelligence. The result can be regarded as a fair sample of modern Anglo-Saxon economic thought—that body of written and unwritten analysis, recently infused by Austrian blood and lightly kissed by mathematics. In appraising the book, I shall pay it the compliment of judging it in the unsparing fashion appropriate to an important contribution to modern thought.

Myint attempts to give a survey of welfare economics since the time of Adam Smith and also attempts to find out what types of welfare economics are likely to prove most useful for the purpose of practical policy. The first third of the book deals with the classical writers prior to the so-called marginal revolution of the 1870s. Part II, which is about half the book in length, deals with the neo-classical views on welfare economics, including Pareto and up through Pigou's *Economics of Welfare*. The final brief section brings in the broader philosophical questionings of Knight, J. M. Clark and others as to whether the preferences in terms of which people act in the market-place have ethical validity, and whether formal economic theorising about behaviour is very fruitful.

About Part III's philosophical inquiries, I have little to say. Myint is judicious and he has read widely; the topics covered are ones upon which views differ greatly and at many points a different synthesis of judgment would be possible. In some ways, the most interesting part of ethics is what is left out—all *inter-personal* normative comparisons. At the beginning of the book Myint tells us that this is not part of "economic welfare" but belongs to the field of "*general social welfare* which cannot be analysed in purely scientific and quantitative terms" (p. xi). *Ergo*, the subject is almost never discussed.

Now at the time when Lionel Robbins wrote his *Essay on the Nature and Significance of Economic Science*, it was probably necessary for students steeped in the traditions of Edgeworth, Cannan, Marshall, and Pigou to divest themselves of the quaint notion that there exists a quantity of social utility, made up of a sum of the cardinal satisfactions of different individuals, and of about the same degree of objectivity as the observation that price and quantity are inversely related along a market demand curve. But this does not justify the belief on the

part of anyone that policy prescriptions can be made independent of normative judgments concerning different people; and that there exists no analytical field of welfare economics concerned with the deductions of the implications of various arbitrarily given ethical precepts (i.e., Bergson "social welfare functions"). For a brief period, those who took their Robbins too literally grasped at the straw of a "new welfare economics" which was to be independent of interpersonal ethical elements. But freed from the obscurities of geometry and Paretian French, the new welfare economics stands revealed as being merely a set of *incomplete necessary* conditions whose whole *raison d'être* disappears if the additional ethical conditions are not adjoined.

No reader of Myint is likely to gain from the book many notions as to what the above paragraph is all about, or how to go about relating the "old" to the "new" welfare economics. Nonetheless, Part II, particularly Chapter VII dealing with "The Theory of the General Optimum" along the lines of Pareto and Hicks, will probably prove to be the most valuable part of the book to the student of intermediate and advanced economic theory. I myself most enjoyed the retrieving of Henry Sidgwick from out of Marshall's corona; Myint brings out the little-known fact that Pigou's welfare economics traces back to Sidgwick almost more than to Marshall.

Aside from giving samples of Marshall's "Victorian morality", Myint devotes the longest chapter of the book to an approving discussion of the "Marshallian Surplus Analysis". He seems to regard this as "practical", or at least more so than the analysis of Pigou and Pareto; but just why Myint thinks it practical, I cannot find out. This is a realm in which Marshall was not only vague but full of blunders: much of what he says is nonsense and is unsaid at other parts of the book; and the fact that Marshall avoids some of the errors of his followers is a tribute to him and not to his brain-child, consumer's surplus. And yet this doctrine is usually regarded as Marshall's most important analytical contribution—a damning and cruel verdict, indeed. Only Hicks has given a defensible formulation of consumer's surplus and in his hands it becomes nothing more nor less than a particular reformulation of indifference loci: the single important purpose of the concept is to help make decisions *in the large*—i.e., to decide whether it would be better to take a large finite (rather than small) step away from a particular position; and to this aspect of the problem Myint devotes almost none of his thirty pages. Instead he reproduces, without apparent disapproval, Figures 30, 31 and 32 from Marshall's *Principles*, designed to show that increasing cost industries should usually be taxed in order to expand decreasing cost industries. Yet Myint is clearly aware that these unwarrantedly neglect producer's surplus in arriving at their conclusion, and he is also aware that in Figure 33 Marshall in effect points out the errors in reasoning of Figure 31.

Part I impressed me as the least satisfactory part of the book. Myint argues that modern economists believe that efficient allocation of resources was the "central problem" of classical economics; he argues that this was not their central problem; and if it was not, he asks what was? After casting about for an answer, he comes up with the thesis that their "central problem" was that of raising the technical productivity of the economy, and that their labour theory of value predisposed them to a man v. nature view of the economic problem rather than to a tightening up of the efficiency of the economy by means of marginal conditions. He warns against the anthropomorphic sin of reading into earlier writers the analysis of present-day economic theory.

He works hard to establish this thesis, desperately hard, and succeeds in giving it a certain superficial plausibility. But upon closer examination of his dialectics and after chasing down his references, I found it increasingly unconvincing. There was no one central problem of classical economics, and to knock one out as pretender does not pave the way for establishing another on the throne. The author is so carried away with his own argument that he even ends up with the conclusion that Smith's afterthought on "productive labour", one of his few belated quasi-borrowings from the physiocrats, is the most important part of his doctrines.

As I chased down the author's references, again and again I felt his thesis led him to read things *out* of his authors that were there. For example, Smith did realise and state the consumer's surplus arising from exchange; secondly his analysis of the advantages of the division of labour can be interpreted (and in effect has been by Ohlin) in terms of the later Hicks-Kaldor diagrams (p. 113). Smith did cheerfully acquiesce to Bentham's criticism of his own uncharacteristic leniency toward the laws of usury. And as Myint himself clearly shows, the classical theory of comparative advantage is a perfect example of modern welfare economics; and the classical rent theory, telling how new units of labour will be added to different plots of land, is another such example, beautifully illuminated by the Hicks-Kaldor construction.

In short one ends up with the feeling that there is a worse sin than the anthropomorphic one of reading modern analysis into older writers' works. There is in addition the sophisticated-anthropomorphic sin of not recognising the equivalent content in older writers because they do not use the terminology and symbols of the present.

Space does not permit a more thorough documentation of my skepticism concerning Part I. When a man sets out to prove that England is not an island or that Lytton Strachey wrote the *Economic Consequences of the Peace*, perhaps we should judge him not by how persuasive is his total argument but by whether he gives us a run for our money; by whether his points are at least *near-* rather than *far-* fetched. But then there is the sterner view that *Dogmengeschichte*

is a game only worth playing if it is played very well indeed. From any viewpoint, *Theories of Welfare Economics* is a distinguished contribution to economic theory.

PAUL A. SAMUELSON.

Overhead Costs. By W. ARTHUR LEWIS. George Allen & Unwin Ltd. 1949. 200 pp. 15s.

Professor Lewis, in articles written over the last few years, has made a weighty contribution to the understanding of some of the leading economic problems of our time, and the appearance of a collection of these articles in book form is to be welcomed. The author happily combines analytical skill, a knowledge of fact and, above all, a sense of relevance in the application of theory to the study of the actual world, and this book amply demonstrates his merits. He is not content to proceed by an extreme simplification of the content of the problems under examination, a method which sometimes leads to the evasion of fundamental complexities and is always irritating to the man of affairs whom economists hope to influence. Rather, he takes the issues as they are presented to the economic administrator, and he shows what help economics can give in their elucidation. The result is that these contributions to the subject are not merely of interest to academic persons, but they are also of practical use to anyone concerned with policy who takes the trouble to study them.

The essays deal mainly with the intricacies of costs and price formation in fields where special complexities are to be found. The first and most important essay is concerned generally with the problems of costs and pricing in situations in which overhead costs form a high proportion of the total, and the results of the analysis are applied to certain industries (road and rail transport, electricity and gas) over which public control has been instituted. Some writers have suggested that in the administration of State undertakings it is sufficient for the managers, in order to provide for the efficient allocation of resources, to apply the rule that price must equal marginal cost. Professor Lewis shows how ambiguous and inadequate this injunction is as a working rule for public administrators, and he then proceeds to consider the meaning that may usefully be given to marginal cost in the context of particular industries and, both in this essay and in the following one on the Two-Part Tariff, to adumbrate the pricing rules that satisfy the claims of economic rationality. Incidentally, he points out that some accounting and business conventions have a sounder foundation than economists are often willing to allow.

In chapters on the Economics of Loyalty, and Competition in the Retail Trade, Professor Lewis addresses himself to trade practices which have a close bearing on the efficient operation of the contemporary economic system. He is no advocate of *laissez-faire*, and by no means an indiscriminating admirer of free competition in the

promotion of efficiency. Consequently, his forceful demonstration of the harmful effects of the restrictive practices which have penetrated so deeply into our economic system is all the more convincing. His chief remedy for the defects in the organisation of distribution is to make resale price maintenance illegal. While this would certainly have salutary consequences, it may be doubted whether, in view of the powerful conventions that govern many distributive margins, it would really "revolutionise the distributive structure", as he declares. The study of the Inter-Relations of Shipping Freights throws fresh light on a subject hitherto neglected, and it disturbs some popular judgments on the relations between different classes of freight rates.

In his essay on Monopoly and the Law, which first appeared in the *Modern Law Review* in 1943, Professor Lewis is bold enough to force himself into the thicket where lawyers fumble with questions of monopoly and restrictive practices, and from that base he sets out to challenge the legal principles that have been applied in recent decades and to formulate a policy for the control of monopoly. He arrives at a familiar conclusion that "private enterprise can only be retained in so far as it is competitive", and that "the maintenance of free markets is a positive task to which the police power of the State should be applied". He further indicates the lines along which this task should be tackled. In reading his discussion of single-firm monopolies (p. 166), one recalls Professor Macgregor's warning that "monopolistic purpose is difficult to distinguish from higher organisation" and that this greatly complicates the problem of dealing with them. The author's statement that Great Britain "remains almost the only important country without legislation to keep the market free, or at least a general law to control the activities of monopolists" is no longer true; but the essay has lost none of its value because in this respect events have overtaken it.

In the seventh and last essay Professor Lewis writes about the Administration of Socialist Enterprises, and here he makes some useful proposals. His treatment is realistic in that he sees that many problems of pricing policy in public enterprises are not wholly economic in character, although of course this does not justify the subordination of economic to administrative considerations that so often occurs. He faces the dilemma that the public corporation must be accountable to Parliament and yet cannot be subjected to day-to-day criticism, and he tries to formulate the rules to which the managers of such undertakings should be required to work. He urges, as many others have done, the necessity for avoiding administrative centralisation if efficiency is not to suffer. About this, it may be said that centralisation follows the assumption by the Government of responsibility for some field of economic activity. Until ministers are prepared to define within much narrower limits than at present (though very precisely within those limits) the scope of the Government's responsibility for each field of economic activity, then, it may be suggested,

extreme centralisation and the inefficiency that accompanies it will continue. Another difficult problem examined by the author is the extent to which public corporations should be free to build up reserves for expansion. Since corporate savings have in recent times represented such a high proportion of net investment, the transference to the public sector of undertakings that were formerly an important source of savings requires the formulation of rules to govern this aspect of policy. Professor Lewis offers some suggestions, but leaves us with the impression that it is far from easy to work out a rule of general application. Perhaps the best that Parliament can be expected to do in this respect is to correct any existing bias in the policy of the public corporations, and at present this bias would not appear to lie in the direction of over-saving.

Readers will occasionally find themselves in disagreement with particular arguments in a book so stimulating and, at times, so provocative. Some may think, for example, that here and there a proposition or an argument has been put forward rather too emphatically. Thus, on p. 169, the author points the contrast between the nineteenth century, when "men with initiative could rise in industry", and the twentieth century, when "they are locked out" unless they have special privileges. This may be prophetic; but it is hardly a correct appraisal of what happened in the first four decades of this century, for many large businesses were built up during that period by men of initiative who were not "the sons or favourites of the industrial barons". Again, on p. 14 footnote, is he not over-stating his argument when he says that "entrepreneurs refuse to produce" unless their overheads are covered? Entrepreneurs certainly think that they have a right to cover their overheads, but even in conditions that diverge widely from those of perfect competition there are surely many examples of the continuance of production at prices that fail to achieve this aim. These, however, are minor points of disagreement on the part of the reviewer with the arguments and conclusions of a book distinguished throughout by high qualities of analysis and judgment.

G. C. ALLEN.

Des Mouvements Économiques Généraux. By PROFESSOR LÉON H. DUPRIEZ. 1947. I, xi + 552 pp.; II, 648 pp.

This great work of 1,200 pages is the outcome of a project which had been long entertained by the author, but which had never advanced beyond the stage of preliminary researches till the German invasion of Belgium in 1940, and the resulting interruption of the normal business of the University of Louvain, thrust upon him the leisure he needed to embark upon the writing of it.

The book starts with a critical account of Say's *loi des débouchés*, and its influence on the economists of subsequent periods. Say's

law, that products exchange for products, and that consequently production is itself demand, is not an identity, but a principle of equilibrium (p. 84). So understood, it merges in Walras's principle of general interdependence. Walras described the equilibrium embodied in his equations as *un état idéal, non réel* (p. 87), since at any moment market prices do not correspond exactly with those which would balance demand and supply, and excesses either of demand or of supply result.

If demand is not equal to supply, that is because spending is not equal to production; the difference arises from modifications in the quantity of money and in the velocity of circulation (p. 93).

The second part of the book deals with secular expansions, and supplies a wealth of facts, statistical and other, covering a long period (in some cases going back to 1700). Professor Dupriez confines himself to "secular" movements, to the exclusion of "millenary". It may be that the course of millenary evolution would reveal phases of stagnation and even of contraction, and that we should have to conceive the expansion characteristic of the past two centuries as itself no more than a phase, to be followed possibly by a period of contraction. That hypothesis would lead into the realms of abstract deduction, and he accepts the limitation of the materials for a scientific study to the case of an expanding system. (p. 222.)

When Professor Dupriez comes to sum up the results of this part of his investigation, he finds various sources of instability in the process of expansion. The problems of expansion (Chapter XII) lead him on to Parts III and IV, which deal with long-term and cyclical fluctuations, and form his second volume.

Here the statistical material becomes predominantly monetary. And the conclusion is that the price series reveal continual tendencies towards equilibrium positions, but that the movements of production are slighter, less regular and less general than those of prices, and often almost non-existent (Vol. II, p. 221).

Among monetary indices, special importance attaches to fluctuations in fiduciary currency, the excess of note issues over metallic reserves, and here a prominent part is played by wars and the inflations and reactions in monetary and credit policy occasioned by them (p. 222). Both the inflationary tendency and the reaction are amplified by the "acceleration principle" (p. 239).

If the long-term movements of the past century-and-a-half have had an approximately periodic character, that is because wars have themselves been more or less periodic (pp. 242-3).

On the other hand the cyclical fluctuations have an *intrinsically* oscillatory character. They are equally affected by the acceleration principle, which applies to stocks as well as to instrumental capital (Vol. II, pp. 346-7).

In the first stage of revival, when productive power is still under-employed, production can be increased to meet an expansion of

demand without any extension of equipment. But when activity approaches near full employment, the growing demand calls for an extension of capacity, and it is only then that the acceleration principle becomes fully operative. At that stage there occurs a congestion of demand (p. 347). Extensions of capacity are limited by the capacity of the instrumental industries themselves. The response of productive power to the pressure of demand encounters *étranglements* (pp. 351-2—happy the French language which can dispense with the cliché 'bottlenecks').

It is in these stranglements or constrictures that Professor Dupriez sees the cause of a reversal of the expansion: the prices of instrumental goods and of intermediate products are forced up, and the rise of costs extinguishes profits (p. 355).

The scarcity of factors of production brings into operation the principle of marginal yield; they are enabled to enforce upon the entrepreneur their right to their share in the product (p. 356). Professor Dupriez infers that a state of full employment is essentially unstable (pp. 469-70).

This conclusion is to be traced, I think, to the treatment of profit in Volume I (pp. 449-50). The principle of marginal yield, strictly applied, excludes profit as a normal incident of costing. It allows a notional salary for the entrepreneur to be included in overhead costs; it allows remuneration for risk; it allows quasi-rents for innovators and skilled organisers; it allows the gains of imperfect competition and monopoly. But it allows no room for the margin above costs upon which in practical life every entrepreneur reckons when he is deciding either what price to ask for his product, or what advance of wages he can afford to concede to his work-people.

There is in reality no reason why, at a time when demand outruns productive capacity, profit margins should be unduly diminished. So long as entrepreneurs can provide the money to pay their costs, whether by drawing on balances or by borrowing (Vol. II, p. 379), demand will be kept up, for production generates incomes and incomes generate demand. There will be some producers whose costs are raised because a material or intermediate product that they use or a grade of skilled labour that they employ has become scarce. Their output is prevented from responding to demand, but then the price they can charge for their product is so much the higher, and they can maintain their profit margin unimpaired. And the producers of the scarce material will presumably make abnormally high profits.

Rising prices, rising costs and rising profits can continue indefinitely, provided money is forthcoming, and a need for money takes shape in a need for credit (p. 365).

It is strange that Professor Dupriez takes so little account of the intervention of the banking system to restrain an expansion. He seems hardly to be aware that a banker ever says no.

He develops the theory of credit as the source of the supply of money in Part III, where he is dealing with long-period movements. The

supply of credit is regulated by the institutional regulations governing reserves (p. 262). That raises the question of the rate of interest, and here he follows Wicksell. Rising prices raise the marginal efficiency of capital; falling prices lower it. If the rate of interest varied exactly with the marginal efficiency of capital, the expansions and contractions of credit would be kept within narrow limits, or even eliminated altogether (p. 264). But in fact, though rates of interest move in the same direction as the price movements, they do not move far enough. Consequently either an expansion or a contraction gathers cumulative force (p. 239).

Is the banking system to acquiesce in either of these cumulative movements indefinitely? The commercial banks accept automatically the leadership of the bank of issue which supplies them with currency. And the bank of issue does not conform very closely with the reserve law which limits its note issue (p. 265).

But the fact that a stage may be reached at which the directors of the bank of issue decide that a cumulative expansion must stop, and take decisive action to that end, finds no place in Professor Dupriez's analysis.

It is, I think, a fault in his treatment of the rate of interest that he bases long-term and short-term rates alike on the marginal efficiency of capital. The marginal efficiency of capital is a concept appropriate only to instrumental equipment. Theoretically it can be so formulated as to apply to working capital and stocks of goods, but the difference between working capital and instrumental capital is so great that in practice the application to them of the same phrase can only cause confusion.

Undoubtedly a monetary expansion might be stopped by the rise of wages outstripping the rise of prices, and so encroaching upon the margin of profit. That actually occurred in the United States in 1933 and again in 1937. But otherwise in the cyclical fluctuations which supply Professor Dupriez with his facts there is, I think, no trace of it. The turning point from activity to recession was usually associated with a rise of real wages, but the rise was due to a fall of prices rather than to a rise of money wages.

On the other hand the climax of every fluctuation was marked by a pressing shortage of gold reserves and a high bank rate.

If one of Professor Dupriez's conclusions is thus open to challenge, that does not seriously detract from the high value of his book. An important feature of his theoretical approach to his subject is his acute and thorough critical treatment of the economists who have previously contributed to it. And the vast mass of statistical material has been so skilfully assembled and presented that it will be of lasting value to all interested in this vitally important phase of economic history.

R. G. HAWTREY.

The Veil of Money. By A. C. PIGOU. Macmillan & Co. Ltd. London. 1949. vii + 150 pp. 8s. 6d.

The Veil of Money is an introduction to the theory of money and to the theory of income determination. But this does not mean that it is an elementary book, suited to the needs of the layman, were he "prepared to make some intellectual effort" (p. v). The book makes no concession to the reader, and the argument is often hard to follow through its extreme conciseness.

The Veil of Money falls into two parts. Part I: Money, which deals with the functions of money and of the price system, makes plain sailing enough and raises little comment. However, it seems rather misleading, in an introductory book, to present the constancy of the cash ratio (pp. 9-12) as resulting mainly from a choice of the public between holding their money in the form of currency or of bank balances, and not to say a single word about it being the result of a compromise between liquidity and profitability on the part of the banking system. We also find some difficulty in accepting Professor Pigou's definition of inflation as a situation where "money income is expanding relatively to the output of work . . . by productive agents for which it is the payment" (p. 15). This unusual definition raises as many difficulties as the more common one of money income increasing relatively to real income. Professor Pigou is indeed ready to acknowledge this, and to propose an approximate measure of inflation in the increase in money income divided by the increase in employment, which is not perfectly clear cut either. But we do not see the usefulness of introducing one more definition to the only too confused concept of inflation. Especially as this definition does violence to the common usage of the word (if productivity is increasing, "inflation may be taking place, though prices are falling"; p. 15), and is of practically no use for the analysis of Part II. But the rest of this first part is full of compensations, and chapters IV ("Money, a Veil?") and V ("The Price System") are certainly among the very best summaries of their subject.

Part II: Money Income, by far the larger, is a theory of income determination completed by two chapters of a less academic character dealing respectively with wartime inflations and cheap money policy. This part is a highly concentrated piece of theoretical analysis, which gives us in the short span of 55 pages an almost complete translation of his *Employment and Equilibrium* in literary terms, with a few differences which we shall discuss presently. It seems doubtful whether anyone unable to follow the argument of *Employment and Equilibrium* could find his way through the first nine chapters of this part, a fact which invites some scepticism about the usefulness of the book.

The analysis is conducted on the basis of very restrictive assumptions: we are thrown into a model world, consisting of two homogeneous industries, producing a single consumption and a single investment good, where all work-people are alike and paid the same money wage.

The system aims at determining the level of money income (and not primarily of employment as in *Employment and Equilibrium* in a situation of short period equilibrium, and at comparing the values it reaches for different levels of the relevant functions. As a rule expectations are static (an assumption which renders irrelevant the discussion of pp. 70-73 on commodity and money rates of interest, a subject which seems unduly to fascinate economists and which only becomes of some interest, if any, when expectations are not static).

The setting of the system differs from *Employment and Equilibrium* in two points. On the one hand, the proportion of "expendable purchasing power in the hands of wage earners" is explicitly introduced into M , V and the consumption function, whereas it was disregarded (rightly I think) in the former version. The grounds for this introduction are that, if the money income of wage earners is a roughly constant proportion of global money income, transfer payments, especially through unemployment relief, make the proportion of purchasing power available to them vary significantly with the level of employment. We are not sure that the complication thus introduced in the analysis is fully justified by the results. On the other hand, we find no longer the useful distinction between four types of monetary policy which made the approach towards the monetary effect in *Employment and Equilibrium* so much more realistic than the Keynesian liquidity preference approach. Now both the circulation function (M) and the income-velocity function are simply considered as increasing functions of the rate of interest, without any other elaboration.

The crux of the discussion lies in Chapters VII-IX where the influence of money wage rates on the level of money income (and partly of employment) is considered. The argument may be summed up as follows: a higher level of money wage rates, other things being equal, entails less employment and a higher money income. If we consider now changes originating in another factor than the rate of money wages, flexible money wage rates (which are supposed to vary in the same direction as money income) will accentuate the variation in money income and reduce the variation in employment. The stickiness of money wages would thus act as stabiliser of global money income and as a destabiliser of employment. These somewhat surprising results (we are rather used to factors stabilising money income and employment at the same time) logically flow from the assumptions of the model, especially, I think, from the assumption of static expectations. So far so good. But it is a little surprising to see Professor Pigou apply these conclusions to the actual conditions of the trade cycle and of the historical long run. This is unwelcome *non sequitur* in a study intended to be an introduction, and it entails some unexpected conclusions. In the trade cycle, money wage rates are sticky, hence employment fluctuates more and money income less than they would do with flexible wage rates. But in the long run, money wage rates

are flexible and we may consider wage earners as "ready to accept on the average a certain percentage of unemployment as the price of maintaining a certain level of real wage rates" (pp. 118-119). In these conditions, "we might reasonably expect *a priori* that money wage rates would so adjust themselves as to keep the average percentage of unemployment over good and bad times together substantially unchanged, as it was in fact substantially unchanged in this country during the sixty years before 1914" (p. 119). The task of verifying this belongs to the historian, but it appears *a priori* difficult to consider as insignificant the fact that the British economy during this period was not a closed economy, with a stationary population and static price expectations. These three chapters are disappointing indeed. Professor Pigou's recent papers (and their exegesis by such authors as Mr. Don Patinkin) did so much to clear up the muddles associated with the notions of a perfectly elastic supply curve of labour and of under-employment equilibrium, that we were expecting some traces of their conclusions here. They have shown us that, in a situation of short-period equilibrium with static expectations, unemployment can only be due to the rigidity of absolute prices and wage rates, and that involuntary unemployment is a purely dynamic concept which cannot be accounted for in an equilibrium model. But there is no echo of these fundamental results in *The Veil of Money*.

Despite these criticisms (partly due to the high expectations associated with the name of Professor Pigou over the title of a book) *The Veil of Money* makes a very stimulating, if not always easy, reading. And one cannot but admire, once more, the wonderful analytical powers of an author able to say so much in so few pages. But just owing to these qualities, the mention "to use with care" should be added for the non-professional economist.

G. ROTTIER.

Sampling Methods for Censuses and Surveys. By FRANK YATES.
Charles Griffin & Co. Ltd. 1949. xiv + 318 pp. 24s.

This is an important book. It was prepared at the request of the United Nations Sub-Commission on Statistical Sampling, of which Dr. Yates is a member. It is designed as a practical manual on sampling techniques for those with little training in mathematical statistics but with experience in census and survey work. It brings together, in concise and convenient form, much of the recent developments in sampling methods to which British statisticians have contributed so largely. It deserves to be widely used; a translation into French is already in preparation, and others should be encouraged.

It is essential to be clear on what the book sets out to do—or rather on what it does not do: In the first place, though the book will be valuable in teaching, it is not a textbook in mathematical statistics.

Practically all proofs are omitted. Secondly, it is confined to only one application of sampling techniques, in the conduct of censuses and surveys. It is limited, therefore, to the estimation of simple totals and the ratios of totals; for example, the total number of farms growing wheat and the total acreage under wheat, from which are derived the *proportion* of all farms which grow wheat and the *average* acreage under wheat per farm. It is not concerned (for example) with methods of estimating coefficients in linear relations assumed to hold within a set of variables.

The order of treatment of his subject matter must have raised an awkward problem for Dr. Yates. He has chosen to proceed from a description of the different methods of sampling, through the problems arising in planning and executing a survey, to the more theoretical questions of statistical estimation. This treatment will suit many, particularly those willing to take theoretical conclusions on trust. Others will perhaps find it better to read the later chapters first. It may be useful to give an example of the kind of difficulty inherent in the treatment chosen. In stratified sampling, the fraction selected can be varied from one stratum to another; the question is what is the most efficient set of sampling fractions. Early on (p. 28), Dr. Yates simply asserts that "the greatest accuracy for a given number of units will be attained if the sampling fractions are proportional to the within-strata standard deviations of the units". This doesn't answer the question. Later (p. 255), we are shown how to determine the over-all size of the sample to achieve a given accuracy in estimating a total or average, provided that the proportionate sampling fractions are fixed in advance. This is clearer, but again the question is avoided. Finally (p. 285), we get the real answer, namely the determination of the sampling fractions so as to minimise the cost of the sample for any given degree of accuracy required. And it turns out that the sampling fractions are not necessarily proportional to the within-strata standard deviations.

The book is essential reading for those interested in social surveys. But the economist (in the narrower sense) will also find much of interest to him. There are good sections on sampling by means of a continuing sample with partial replacement of units on successive occasions, just the kind of sample to produce regular information needed in filling some of the gaps in economic data. Further, the economic theorist cannot fail to be fascinated by the last chapter on efficiency of sampling methods, a matter little discussed hitherto in the literature. The nature of the problem can be seen in the context of the simplest of sampling methods, stratified as compared with random sampling. For random sampling and for stratified sampling with a uniform sampling fraction, the problem takes a very simple form—the determination of the size of the sample to give a required degree of accuracy in estimation. To the extent that the size of the stratified sample is smaller than the size of the random sample (for

the same accuracy), stratified sampling can be said to be more efficient than random sampling. The problem becomes more complex when stratified sampling with a variable sampling fraction is introduced. There is now an optimum problem familiar to economists, the problem of determining the sampling fractions which will make the over-all size of the sample a minimum for a given accuracy. But, in fact, we are not interested in size of sample as such, but rather in the cost of conducting the sample. The cost need not be proportional to the size of the sample, and usually it will not be. The optimum problem needs to be generalised to determine the composition of the sample to minimise cost for a given accuracy. Dr. Yates works out this problem in the simplest case on the assumption (which unfortunately he does not state explicitly) of *constant* marginal cost with respect to increasing numbers sampled. Other and more complicated cases can be worked out; they are all of obvious and immediate practical importance.

Dr. Yates and the publishers are to be congratulated on a carefully edited and produced text. I have relatively few corrections or suggestions for improvement to offer. The reference to Section 3.17 towards the bottom of p. 77 should be to Section 3.18. I think the correction $(1-f)$ for finite sampling should have been introduced in the formula for $V(\bar{r})$ towards the top of p. 224. Occasionally, there is a bald and somewhat doubtful assertion, as on p. 3 where Dr. Yates says that "the individuals concerned are more likely to be willing to provide [detailed] information if they know that they represent a small sample of the whole population". Dr. Yates passes over rather lightly the question of terminology and notation (p. 7); personally I doubt whether bold face and Gill Sans type are sufficiently distinct for population values and their estimates respectively. In discussing "frames" for taking samples of industrial undertakings, Dr. Yates seems to ignore the possibility of a current up-to-date register of firms. Finally, on the important matter of compensating for defects which disclose themselves after the taking of a sample, Dr. Yates is content (p. 130) with a brief comment which seems to have been included almost as an after-thought.

R. G. D. ALLEN.

Income, Employment and Public Policy. Essays in Honour of Alvin H. Hansen. W. W. Norton & Co. New York. 1948. 379 pp. 21s.

"Few American economists have influenced economic thinking and policy in our time as has Alvin Hansen; we offer these essays at the way station of his 60th birthday."

The excuse for this latest American miscellany is certainly worthy enough. Inevitably the sixteen essays are uneven and the thread of connection is often tenuous, but there is something to suit all tastes, if read *à la carte*, not *table d'hôte*.

They fall into Part I: Determinants of Income, Part II: Social Setting, Part III: Economic Policy. Here it is impossible to give more than a general indication of the contents of each of these. The theoretical Part is the one with the most obvious appeal to English readers; here Lloyd A. Metzler's essay on "Three Lags in the Circular Flow of Income" is the most clearly and concisely stated. The lags are those between receipt of income and its expenditure (the Robertson sequence), that of output between a change in routine of sales (the "output lag"), and finally that between increased profits and the disbursement of these in the form of dividends. Metzler has examined the data available for the measurement of the magnitude and timing of these lags in the United States in the period between 1932 and 1938, and arrived at some interesting conclusions.

Other essays in this Part include "Concepts and Criteria of Secular Stagnation" by Benjamin Higgins which appears to be a restatement of Hansen's secular stagnation thesis; in fact the author's modest claim is that "this essay does little more than provide a basis for preliminary discussion". It is surely rash to show (as is done in Fig. V, p. 83) the Kondratieff cycles as fluctuation of production even as a diagrammatic exposition of the cumulative nature of cyclical and secular trends.

Evsey D. Domar writes on "Investment, Losses and Monopolies"; his conclusion, "that our main investment opportunity should spring in the future from technological progress and aggressive competition", does not appear to be very significant, especially for this country, while the statement that "we must recognise that economic progress in our society is a cruel and destructive process" has a curiously nineteenth century flavour.

It is inevitable that several essays should have a mathematical nature that will not be palatable to all. Paul A. Samuelson provides one on "The Simple (*sic*!) Mathematics of Income Determination"; the other two are by Richard M. Goodwin ("Secular and Cyclical Aspects of the Multiplier and the Accelerator"), and James S. Duesenberry ("Income-Consumption Relations"). On the two former I do not feel qualified to comment; but in his essay Duesenberry has considered the pitfalls that occur if the consumption data are used uncritically and his conclusion is that the cyclical marginal propensity to save is (in the relevant range) higher than the long-run propensity and thus the use of cyclical data to estimate the long-run relationship leads to invalid conclusions.

The weakest Part at first reading appears to be that devoted to Social Setting, being three essays by D. M. Wright ("Income Redistribution Reconsidered"), S. A. Alexander ("Opposition to Deficit Spending for the Prevention of Unemployment") and H. S. Perloff ("Dynamic Elements in a Full Employment Program"). These may have interest to British readers as illustrating how cautiously American economists must advance propositions that are generally accepted as

axiomatic in this country; it is also noteworthy that Mr. Perloff's essay, which is a critical examination of the Murray Full Employment Bill, does not mention foreign investment as one possible outlet for excess saving. (This is a point to which I will recur).

The last Part, entitled Economic Policy, consists of seven essays, by R. A. Musgrave ("Credit Controls, Interest Rates, and Management of Public Debt"), A. P. Lerner ("The Burden of the National Debt"), W. F. Stettner ("Carl Dietzel, Public Expenditures, and the Public Debt"), E. C. Brown ("Business-Income Taxation and Investment Incentives"), R. L. Bishop ("Alternative Expansionist Fiscal Policies: A Diagrammatic Analysis"), J. T. Dunlop ("Productivity and the Wage Structure"), and Alice Bourneuf ("Exchange Practices and the Fund").

Musgrave's essay is a sound common-sense statement of the problems that the greatly increased preponderance of the Public Debt has created. (The United States commercial banks now hold 70 per cent. of their earning assets in this form.) He suggests that the absolute level of the interest rates has far less influence on investment decisions than anticipations of an early change in prevailing interest rates.

Mr. Lerner's contribution does not appear to add much to what he has so lucidly expounded on other occasions. Mr. Stettner provides an historical study of the writings of Carl Dietzel, a German economist (1829-1884) who apparently anticipated the criticisms that have recently been levelled against the classical attitude towards fiscal policy. As is usual in these discoveries of forgotten worthies, the case is put too strongly; what ought to have been done in the 1920s and 1930s was not necessarily the golden rule for the nineteenth century. One would contest most strongly the statement that Dietzel's was probably the most penetrating and original theory of the public debt of the century. His view that "public credit has a much stronger foundation than private credit" would have rung rather hollow to those whose fathers could remember the Assignats. Credit in Britain was as much built from the bottom up as ever it was the accidental product of a government's financial embarrassment in 1694. The universal belief in the soundness of British government credit is itself a legacy of what has come to be termed Gladstonian finance. There is seldom a short cut in these matters, as many governments and peoples have found to their cost. On the basis of this confidence the pound sterling developed both as a national and an international currency.

E. C. Brown's essay is on a subject that is currently much under discussion both by economists and business men, though his approach is from the angle of the damping down, through a high level of taxation of annual profits, of incentive to new investment, whereas in this country the problem is seen more as the replacement of existing capital.

The solution offered is that losses should be compensated for by allowing excess of depreciation to be carried forward as an offset against future taxable income.

R. L. Bishop's diagrammatic treatment of alternative fiscal policies, though logically pretty, seems scarcely likely to solve Sir Stafford Cripps' budgetary headaches.

J. T. Dunlop as usual is examining some facets of the wage structure, this time the relative movement of wages and productivity.

It is in the nature of an appetiser though he does come to eight broad conclusions for the period 1923-40, the most startling of which are that :

- (1) the argument for and against an increase in wages rates in a particular industry or firm on the grounds of productivity appears much less valid than normally assumed.
- (2) Wage differentials among industries appear to have been surprisingly flexible—there have been marked changes in the relative position of wages in expanding and contracting industries.

It would be interesting to see how far these conclusions would be valid in the British economy.

As one approaches the last essay in the collection, one might hope that the amazing lack of emphasis on topics that "America's role in world economy" might have suggested, would be in part adjusted. Unfortunately Miss Bourneuf's contribution appears to be a rather hypothetical discussion of how discrimination might be exercised against the United States under the I.M.F. rules and how even the Fund itself might adopt a bilateralist policy. Is this symptomatic of the current American ideological prejudice for multilateralism irrespective of the real hardship that this system might impress on others ?

Thus throughout this series there is never mention of overseas development (that is, outside Samuelson's highly theoretical and mathematical essay) as an offset to American saving at full employment levels, or as a positive contribution to world betterment.

To sum up, the total effect of these essays is rather disappointing ; at best they arouse our curiosity without having the space to satisfy it ; at the other end of the scale they verge on the superficial ; perhaps it is too much to hope that any one reader's interest could have been sustained. It is, however, a serious limitation of the "miscellany" method of presentation.

C. N. WARD-PERKINS.

The European Recovery Program. By SEYMOUR E. HARRIS. Harvard University Press. London: Geoffrey Cumberlege. February, 1949. xvii + 309 pp. 25s.

The apparently indefatigable Professor Harris has been first off the mark with an economic commentary of book length on the Marshall Plan and all its works. It was written "not only to explain the E.R.P. and the major issues involved but also to offer some points for consideration when the legislation is again reviewed early in 1949 and

later years". It has, therefore, primarily the American public and essentially the short run in mind throughout. For the non-American reader this has its disadvantages. He is told much that he knows quite well, such as the main economic and political trends in Europe which called E.R.P. into existence and the setting in which it must operate. He would have appreciated more on the American angle on E.R.P. It is true that Professor Harris frequently refers to the voluminous reports and hearings and does not hesitate to cross swords with cabinet ministers and committees. But the non-American reader who is sufficiently interested to study Professor Harris' book uses it in great measure as a substitute for the documentation to which he refers; the documentation itself remains in large part tantalisingly inaccessible.

The non-American reader must comment as an outsider on the picture and advice presented by Professor Harris in Part I of his book for the benefit of "the harassed Congressman, official, or business executive" and in the other three Parts for the (American) general reader and student. Professor Harris provides a succinct account of the European scene which it would be difficult to improve on in the space. Here and there, as the author at one point admits, it becomes somewhat of a statistical marathon but that is extremely hard wholly to avoid. Even for the American reader the stress on the inflationary effects of E.R.P. has perhaps lost some of its urgency owing to the change in the American kaleidoscope since the manuscript of this book was completed in September 1948.

The present reviewer proposes to confine his comments to three points. To begin with, Professor Harris reminds us that support in the United States for E.R.P. came not only from those who regarded it as a weapon against Communism but also from those who saw it as a brake on nationalisation programmes in Europe. Paradoxically, as Professor Harris goes on to tell, the House Committee on Foreign Aid, which had dilated at length on (and against) British nationalisation, proposed a plan for the improvement of the efficiency of European industry which would involve the large-scale supersession of the private entrepreneur and the price mechanism by central planning and control. This surely was an odd way to load the dice in favour of an enterprise economy; probably Alice would be aware of like cases in Wonderland. Again, one must applaud Professor Harris' strictures against proposals concerning the use of local currencies set aside on receipt of Marshall Aid. There appears to have been little clarity of thought on this point relating either to the implications of such use or the magnitude of the contribution that might be expected. It is shown that if the local currencies were taken out of circulation this, for Greece at least, would soon exceed the stable value of her currency outstanding. In less extreme cases, sterilisation would work only if limitation were simultaneously imposed on budgetary deficits and the creation of currency and credit. Some or all of these might on occasion be required

for recovery. Quite apart from that they all affect the question of sovereignty, as communists have realised. "In short, the program of controlling local currencies is of limited value, and is likely to prove a mare's-nest" (p. 184). To which we add: Q.E.D.

In the diagnosis of European ailments much attention is paid to what Professor Harris himself calls "the prevailing fad of dollar scarcity". He reminds us of the substance of his argument in his article in the *Economic Journal* for June, 1947, and again refers approvingly to the treatment of the alleged phenomenon by Dr. Kindleberger although, as the reviewer reads them, the arguments are quite distinct. Whereas Kindleberger purported to show the inevitability of a dollar deficiency owing to marked differences in the size of income elasticities of demand for imports and ratios of exports to national income in the United States on the one side and the rest of the world on the other, Harris appears to use the term as a convenient hold-all for sins of omission and commission. Thus on p. 139 he says: "For more than a generation, Europe has suffered from dollar shortage. In part the explanation is faulty policy making (inclusive of extravagant capital programs and unrealistic exchange rates), in part the failure of the price mechanism to work; but, in addition, structural maladjustments related to war and political disturbances and uncertainties, and the emergence of new industrial nations help explain Europe's difficulties." To these he adds later (p. 286) political resistance to taking appropriate action. But all this is a far cry from alleging chronic invalidism. Professor Harris merely restates the problem.

It is a pity that Professor Harris does not threaten the patient with stiffening of the joints and hardening of the arteries (to maintain the metaphor) unless action is taken now. He does indeed hint at this on occasion, particularly with reference to American agriculture. Possibly his antagonism to exchange rate changes in the very near future tended to cloud his vision. But whatever the method or combination of methods, unless sufficient changes in resource allocation are brought about and the short-run, partly fictitious, gains from bilateralism resisted, there will continue to be a dollar problem of some dimensions. To the reviewer Professor Harris' emphasis seems to be badly at fault here. But the reviewer is thinking of the non-American reader, Professor Harris of the American. No doubt each knows best how to put his own house in order. Certainly, all must be grateful for so much spring cleaning across the Atlantic.

D. J. MORGAN.

War Economics of Primary Producing Countries. By A. R. PREST. Cambridge University Press. 1948. ix + 308 pp. 21s.

This is a more ambitious work than its title suggests. It examines the impact of the war on the economies of the following countries:

India, Palestine, Arabia, Sudan, Cyprus, Iraq, Syria, the Lebanon, Nigeria and Trinidad. Dr. Prest is mainly concerned with several connected topics; the extent of the contribution of each country to the allied war effort in personnel, supplies and exports; the ratio of this contribution to currently available resources; the source of these resources in terms of increase in output, draft on capital or decreased consumption; the distribution of the burden among different classes of the population; and the nature and effects of official policies of war finance. The interest of the discussion transcends the events of the recent war, since many of the administrative, financial and other problems reviewed are relevant to most forms of large-scale industrialisation of primary producing territories.

Dr. Prest is highly qualified for the ambitious task he set himself. He is well versed in monetary theory and national income analysis; he handles statistics with competence and ease and above all his industry is remarkable. His study is very valuable in several respects. He has assembled a mass of data many of which are not readily accessible and which will be found very helpful by others interested in this field. There are many suggestive and interesting hints thrown out by the author, both when describing actual events and when examining official policy. These are particularly valuable in view of the wide relevance of some of the principal topics of discussion of the book.

These virtues need emphasis as there is some danger that the worth of the book may be obscured by some of its obvious defects. One of these is a matter of form rather than of substance. The style is heavy and laboured, which renders the book tedious in parts; at times it is even difficult to get the meaning of the author. The verbosity and inconclusiveness of some of the argument also reflects another weakness. The author has undoubtedly attempted too much and the book would have gained if fewer territories had been reviewed more fully. As Dr. Prest well realises, the published official statistics of all the countries examined by him are seriously incomplete and do not suffice to yield conclusive results on some of the problems which particularly interest the author, notably the extent and distribution of the burden of the reduction in civilian income and consumption resulting from the economic war effort. To afford a basis for conclusive argument on these points the statistics need to be supplemented by intensive study of local conditions, of the local literature and possibly by the collection of additional data; and even Dr. Prest's quite exceptional industry was not wholly equal to this task over so wide a field. He is too honest to twist data so as to appear to give them a fuller meaning than they possess; and too intelligent not to realise their limitations in the form presented by him. At the same time he wishes to place a burden on them which they cannot bear. As a result the argument ends all too often in jejune and inconclusive statements or in severely qualified propositions

which are subsequently contradicted by other propositions equally severely qualified. Even after reading the book carefully, it is difficult to be clear whether the author thinks that the poorer sections of the population in the Middle East suffered hardship from the inflation, or benefited from it, or were generally unaffected; whether the inflationary processes should or should not have been checked by the authorities; whether or not gold sales had a deflationary effect; and whether a reduction in consumption in some of the countries was the inevitable result of the diversion of resources to war purposes (as suggested on page 292) or the result of the international physical allocation of goods (as seems to be suggested on page 294). On occasions the author defends propositions which do less than justice to the general level of the book. Thus he suggests that in Palestine a high rate of interest would not have stimulated either saving or lending: "In the first place the Moslem tradition against usury was strong as in other Middle East countries" (p. 122), which strikes as strange anyone familiar with commerce in Palestine, the Middle East or Africa. Again (p. 123), Dr. Prest suggests that the highest rate of war contribution of Palestine at 38 per cent. of available resources did not suggest a particularly great effort. "The peak reached in the U.K. was 54 per cent. and in the United States 46 per cent. . . . The difference in ratios can of course be explained very largely by the much higher initial standard of living in the U.S.A. and the U.K. but the comparison is still useful for putting war demands on Palestine in their true perspective." This and other similar comparisons are of little meaning.

It is to be hoped that prospective readers will not be discouraged by these defects, which should not be allowed to obscure the solid merits of this book.

P. T. BAUER.

Comparative Productivity in British and American Industry. By L. ROSTAS. Nat. Inst. of Econ. & Social Research, Occasional Papers XIII. Cambridge University Press. 1948. xxiii + 263 pp. 18s.

Dr. Rostas has now presented us with a further instalment of the investigations into productivity which he carried on at the National Institute of Economic and Social Research for some years. Readers of his previous work in this field will not be disappointed in their expectations of a high standard of scholarship and the kind of thorough-going, painstaking statistical work which is slowly laying a respectable empirical foundation for economic analysis.

This book is divided into two parts: Part I deals with various general aspects of the work (the six chapters deal successively with "The Significance of International Comparisons of Productivity", "Problems and Methods of Productivity Comparisons", "Productivity Comparisons in British and American Manufacturing Industry",

"Changes in Productivity in British and American Manufacturing Industry (1907-39)", "Factors Affecting Productivity Differences", and "Productivity and Real Income Comparisons", and Part II consists of a series of appendices explaining the detailed methods of computation for each industry. It may be noted that this work is much more comprehensive than the earlier instalments as non-manufacturing industries are now covered as well as those normally dealt with in Censuses of Production, and furthermore, some preliminary partial estimates are given for productivity in various European countries (Germany, Sweden, Holland) in the 1930s as well as the main tables relating to the U.K. and the U.S.A.

What is the purpose of these investigations and what can we learn from them? Dr. Rostas supplies the answer on page 1: "the importance of making comparisons per head—or per man-hour—is that they throw light on relative real incomes and thus on relative standards of living in the different countries". Now clearly this is the main part of the story, but unfortunately so many other ideas are crowded into the narrative, and the array of statistical evidence is so large, that the picture becomes rather blurred on occasions and readers may get the impression in some places that measurements are made for measurement's sake rather than with any clear purpose in mind. Therefore it may perhaps be helpful if we attempt an interpretation of the real scope and limitations of the work.

The essential part of the argument runs, I think, on these lines. We know from previous investigations into money incomes (e.g., the work of Colin Clark or Richard Stone), and from consumption data (cf. *The Impact of the War on Civilian Consumption*), that real incomes per head were higher in the U.S.A. in the years preceding the war than in the U.K. One may have reservations about the details of these estimates—Dr. Rostas might have explored further the difference, say, between a 1937 comparison and a 1938 comparison—but the broad picture is unquestionably right. Now it is possible that this discrepancy in real income per head might be explained by relatively larger unearned income from capital invested abroad, or by a higher ratio of occupied to total population, or by a higher ratio of employed to occupied population, or by longer average hours of work in the U.S.A. But further analysis at once rules out all these possibilities and, in fact, the advantage lies with the U.K. on each count—and in some cases quite heavily. (It should be mentioned that attention is given to the ticklish question of how far longer hours are an "advantage", i.e., how much substitution exists between hours of work and men.) Therefore the answer must lie in a much greater average output per head of the working population in the U.S.A. than in the U.K.—and this is the topic which Dr. Rostas explores in the greatest detail, showing how far it is due to differences in physical output per head in individual sectors and industries, and how far to the differing relative importance of these various sectors

and industries. The outstanding conclusion is the superiority of the U.S.A. in the field of manufacturing industry, physical output per worker being, on the average, about twice as high in the U.S. as in the U.K. (in only 2 out of 31 industries, fish curing and cement, is output per head absolutely higher in the U.K.) and the discrepancy in physical output per man-hour being even larger (p. 27). Although the margin of superiority is not so clearly marked in other sectors of the economy, and although the U.K. gains from having a smaller proportion of her labour force engaged in agriculture, the only sector where there is any real evidence for absolute superiority of the U.K. is fisheries.

Although in general there is very little fault to find with Dr. Rostas' work—it must be said straightaway that it is far superior in scope and refinement to anything previously published in this field—there are a few points on which comment should be passed. The most important relates to pages 89–93 where the attempt to reconcile real income and productivity comparisons is made. This section would have been clarified considerably if the author had spent a little more time showing the distinction (and relationship) between physical output and net value of output comparisons. The unwary reader may think that the various manipulations by which the ratio of physical outputs per man-hour in manufacturing is whittled down to the much smaller ratio of real incomes per head (p. 92) closely correspond to the points discussed in the text. In fact, there is no very clear and connected discussion of how the transition from a physical output basis to a net value of output basis is made, involving as it does important problems of weighting and inter-industrial sales. Furthermore, as Mr. Arndt showed (cf. "Productivity in Manufacturing and Real Income per Head in Great Britain and the United States", *Oxford Economic Papers*, Nov. 1947), the ratio of "income originating" to "net value added" may differ somewhat in the two countries, and, therefore, the implied assumption that this factor can be neglected (p. 90n.) does not really seem justified. Another point of criticism is the geographical scope of the various U.K. figures. Surely one must be careful to allow for the secession of Southern Ireland when making comparison between 1907 and 1924 figures—one should either make the comparison for Great Britain only, or use instead the results of the Irish Free State Census of 1926. For the whole range of manufacturing industry (with which, it is only fair to add, Dr. Rostas is principally concerned at this stage) this point may not be important, but one would expect it to be relevant in individual industries such as brewing. Table 155 (p. 228) is supposed to refer to changes in agricultural productivity in the U.K., but, in fact, it relates only to Great Britain. It might perhaps also have been pointed out that in both countries any comparison of output and employment figures over time is liable to be biased owing to the increasing accuracy of the Census returns (cf. W. H. Shaw: *Value of Commodity Output since 1869*, p. 80, on the weakness of the 1909 Census in the U.S.).

Then a number of points arise in connection with individual industries. Has Dr. Rostas any reason to believe that the *relative* amount of "potentially unproductive transport activity" is any different in the U.S. and the U.K. (p. 87)? Is he sure he is measuring the volume of output and not the volume of input in respect of services (p. 88)? Surely the differences in the average size and quality of American and British cars which he finds it impossible to take into consideration (p. 167) reduce the value of conclusions considerably in this industry? And could not a more accurate estimate have been obtained in the electricity industry (p. 236) if output generated and labour force engaged in generating (rather than output and *total* labour force) had been compared?

But it would be churlish to continue in this vein. Any worker in such a field as this knows all too well that minor points of this sort can arise only too easily. The reader can rest assured of the soundness of the statistical methods and the painstaking nature of the search for sources of information (though it is somewhat surprising that the bibliography contains no reference to the pioneer work of Alleyne Young and G. T. Jones).

Therefore one may say that Dr. Rostas shows convincingly that the proximate cause of the differences in American and British pre-war real incomes *per capita* is to be found in the over-all superiority of the former in average output per head and per man-hour. The author draws the conclusion that if any advance is to be made in British standards of living an attempt must be made to increase output per man-hour in manufacturing, where the discrepancy with American levels is greatest. Obviously one must agree with this thesis (though it might be pointed out that the distribution of resources between manufacturing industry and other sectors of the economy in pre-war Britain was not necessarily an optimum one from a social point of view and therefore some scope for improvement may have existed here), and post-war experience has given us no evidence to disprove it, to say the least.

But how is such a desirable result to be achieved? Now we enter the field where measures of output per head and per man-hour are of no use in themselves and although Dr. Rostas explores the subject in some detail this is the least satisfactory part of his work, for his analysis of causes of differences in productivity really falls between two stools; he could well have left it out of his discussion altogether, or he could have discussed the theoretical problems involved more thoroughly. The attempt to steer a middle course is rather unsuccessful, for we are given (principally in Ch. V) a large number of different hypotheses—some supported by extremely ingenious statistical arguments—why these discrepancies exist, but there is nowhere any convincing theoretical discussion. The fundamental distinction here, surely, is whether this discrepancy in output per head is due primarily to a difference in available real resources per head or a difference in

the degree of utilisation of these resources. Now this is obviously a very difficult distinction and it bristles with such problems as how to define the stock of resources (is the capacity for organisation a resource or a factor determining the degree of utilisation of resources ?) and how to aggregate physically dissimilar resources. But without such a distinction it is difficult to see how analysis can be pushed very far or how any conclusions at all for policy can be drawn. If the major part of the discrepancy between output per head in the two countries can be ascribed to under-utilisation of resources in Britain, then there is much more chance of increasing real income per head in the short period than if it is due to lack of resources. For resources in the form of material or human capital can only be augmented slowly and natural resources such as minerals not at all.

Dr. Rostas' failure to face up to this distinction—or at least his failure to maintain it consistently—lies, I think, at the root of a number of rather vague ideas which crop up from time to time. On the very first page we have the statement: "higher output per head in one country compared with another means that the available supply of goods and services in relation to its given real resources is higher". Unless the assumption is that labour is the only real resource higher output per head need not mean anything of the sort, but simply that the given real resources *per capita* differ. But, indeed, the concept of labour as the only resource does seem to emerge occasionally. Otherwise, it is very difficult to see what the author hopes to get out of the concept of indirect labour per unit of output (e.g., pages 3, 15, 80). For the fact that, say, the metal machinery used in the textile industry is itself the product of capital equipment, etc., as well as labour—and the same point holds however many stages we care to pursue it—means that he is really chasing a will-o'-the-wisp. Then we have the recurring argument (e.g., pp. 2 and 4) that in some sense or other output per worker is *the* fundamental index. Now there is clearly an important sense in which this is true—as we have seen above it is a most valuable aid in diagnosing the proximate causes of differences in real income per head—but this is altogether different from saying that it tells us anything about the ultimate causes or from indicating how to narrow such differences. To say (page 2) that physical output per head is a good measurement of relative productivity because it reflects the joint effect of a great number of influences on production is rather like saying that a zero order correlation coefficient is a good measure of association between two variates—both statements are true, but how much further forward are we once we have the calculations?

In the light of such passages as these it must be recorded that those who hope to find a very penetrating analysis and quantitative measurement of the causes of the wealth of nations will not be satisfied. Of course, this is in some ways a good fault, for the lifeature of this subject—which is after all at the centre of the whole field of economics

—is strewn with get-rich-quick recipes concocted by quacks and amateurs. It is clearly highly desirable to avoid hasty generalisations, but even within the limitations of our present meagre data it should be possible by further thought and statistical manipulation to push forward the frontiers of our knowledge. Such possibilities as the combination of data from "global" and "sample" enquiries, investigations into the allegation that output per head is lower in British industry even when it is equipped with American management and equipment (cf. *Economic Journal*, March 1949, p. 94), and the wider application of multiple correlation methods (e.g., why not take the ratio of output per head as the dependent variate and try to find out the partial regressions on the ratio of horsepower per head and the ratio of horsepower per unit of output—and possibly other independent variates—for a number of industries?), might all be explored with profit. Further advances might also be made if some attention were given to the ideas and techniques used by recent writers who have attempted to construct empirical production functions for individual firms or industries (e.g., W. H. Nicholls, *Labour Productivity Functions in Meat Packing*).

But whatever the limitations of Dr. Rostas' work it would not be right to end this review without expressing our admiration for the fascinating, and very timely, way in which he has attempted to apply scientific principles to a vitally important field which all too often has been befogged by mysticism and obscurantist ideology.

A. R. PREST.

Carlos V y sus banqueros. La Hacienda Real de Castilla. By RAMÓN CARANDE. Sociedad de Estudios y Publicaciones. Madrid. 1949. xvi + 635 pp.

"Quel esprit ne bat la campagne ?
 Qui ne fait chateaux en Espagne ?
 Pierochole, Pyrrus, la laitière, enfin tous ;
 autant les sages que les fous,
 chacun songe en veillant ; il n'est rien de plus doux."

So does Don Ramón Carande head his chapter on the ever-widening gulf between the receipts and expenditure of the Crown of Castile. Sweet but fleeting was the day-dream of that golden age of Spain ! Alas that the grandeur of a state should rest on the cold figures of its budget !

La Hacienda Real de Castilla is the second volume of Professor Carande's trilogy now in progress under the general title of *Carlos V y sus banqueros*. The first volume, which appeared five years ago, provided a broad survey of the economic life of Spain under Charles V. The author now enters the heart of his subject and gives us a well-documented study of a more limited and all but virgin field: the

vicissitudes of the Castilian treasury during the forty years of the Emperor's reign.

The general course of the economic decay of Spain is familiar enough. Traditional sources of revenue were insufficient to meet the new demands of imperial policy. American treasure did something to narrow the gap, but the uses to which it was put were such that the greater part was drained away and failed to fertilise the home economy. The fiscal privileges enjoyed by the more powerful of Charles's subjects threw the main burden of taxation on the social classes least fitted to bear it. Finally, the infrequent attempts of the Cortes to restrain the prodigality of the Crown were in no way commensurate with the sacrifices imposed.

Professor Carande now fills in the canvas, drawing much fresh material from the archives of Simancas. After describing the Emperor's administrative reforms and the creation of the central organisms charged with the care of the public finances, he proceeds to analyse the expenditure of the Crown, examining in turn the accounts of the various royal households and the sums spent on the army, governors, fortresses and galleys, on ambassadors and posts, on alms, and on the Royal Councils. The interest paid on the *juros* or public debt remains to be treated in the third volume, which will deal chiefly with the Emperor's credit operations.

Rather more than half the book is devoted to the sources of Castilian revenue: the *rentas ordinarias* (that bewildering array of taxes, many of Moorish origin, whose names are the joy of philologists); the *ingresos de gracia*, so called because they were ceded as an act of grace by the Church to the Crown; the grants made by the Cortes, contributions from the New World, and miscellaneous receipts.

Not, it may be thought, a book for the general reader. Yet the author's agreeable prose style and skill in interpreting his mass of information in terms of the daily life of the people make it interesting and even entertaining. Professor Carande comes to the study of history through that of economics, although he does not here employ the methods of economic analysis. We must share the hope which he expresses that the data assembled in the present volume may serve as a starting-point for further advances in both fields of study.

MARJORIE GRICE-HUTCHINSON.

First Census of Manufactures: India, 1946 (2 vols.). Directorate of Industrial Statistics, Ministry of Industry and Supply, Government of India. New Delhi. 1949. x + 333 pp.; iii + 334 + 637 pp.

The publication of India's first census of manufactures (apart from the meagre information compiled for the General Census of 1921, but not collected in 1931 or 1941) is something of an event. May it herald that new era of more complete and (above all) accurate economic

statistics that has been ardently advocated for India for the last 20 to 30 years!

The Industrial Statistics Act of 1942 provided for the collection of information relating to industries by the Provincial Governments. As the Central Government had already adopted definite responsibility for "key" industries, and a policy of supervisory control over many others, it was urgent to secure such information as soon as possible after the end of the war.

The datum collected for 1946 refers only to the Provinces of what, since Partition, has become the Indian Union. It does not cover Pakistan, or any of the former Indian States. It was collected in 1947, but for various reasons—e.g., the unavoidable difficulties appertaining to a first census of this type, and the disturbances arising from Partition—publication was delayed until the summer of 1949. A similar census is to be held annually. The importance of prompt publication is fully realised, and it is hoped to make available the census for 1947 before the end of 1949. It is to be trusted that this aim will be achieved and also that, in due course, the enquiry will be extended to the former Indian States that are now included in the Union, and to those industrial groups which have been omitted for 1946. This Census covers only 29 out of the 63 industrial groups that have been distinguished, and although the main manufacturing industries are included, some of those omitted (e.g., tea manufacturing, cotton ginning and pressing, railway workshops, repairshops and locomotive shops) are obviously far from unimportant. The Act of 1942 provides for the collection of statistics for "factories" as defined by certain sections of the Factories Act of 1934, but this Census deals only with factories employing twenty or more persons in any manufacturing process carried on with the aid of power.

Owing to the predominant importance of agriculture amongst the occupations of India's teeming population, and the continuously repeated references to the need for industrialisation, the industrial importance of India tends to be overlooked. Moreover, it should not be forgotten to how great an extent the industries of the whole Indian sub-continent fall within the Indian Union, and how few within Pakistan. The 29 industries here represented cover more than 5,000 registered factories (for which returns have been received for over 4,000). 68 per cent. of these are in Western Bengal (24 per cent.), Madras (25 per cent.) and Bombay (19 per cent.); they employ 1½ million persons (89 per cent. of whom are men, and less than 1 per cent. children under 15); rice mills (31 per cent.), general engineering (21 per cent.), and vegetable oil mills (11 per cent.) together account for 63 per cent. of the total number of factories; amongst the major large-scale industries, cotton-textiles account for the largest number (48½). Total productive capital in these industries amounts to Rs. 367 crores, of which 45 per cent. is fixed capital. In this respect Bombay leads (34 per cent.), followed by Western Bengal

(28 per cent.), whilst both Bihar and the United Provinces have more capital employed than Madras (only 10 per cent.) despite Madras' large number of (small) factories.

The information collected covers a wide field: e.g., the number of factories of each type, the average number of working days, the productive capital employed, the number and classes of persons employed, the man-hours worked, the salaries and wages paid, the quantity and value of fuel, electricity and lubricants consumed, the quantity and value of materials used, the quantity and value of products and by-products, the ex-factory value of raw materials, fuels, etc., consumed and work done for the industries by other concerns, and the value added by manufacture. All this information is clearly classified and tabulated, and although some five pages of "errata" have been separately issued and should not be overlooked, this, under the circumstances, does not seem unduly large. Summary tables have been prepared giving the main data by Provinces, and by groups of industries, in relation to capital employed and to the number of wage-earners and to the value of production. Detailed information follows for each group of industries separately.

The great variety of organisation and conditions between industries immediately strikes the eye. Production is in some cases scattered in small concerns throughout the country; in others concentrated in a few huge plant. In the iron and steel industry the concentration of primary production is so great that—as one assumes—in order to comply with the "secrecy" clause (included in the 1942 Act in accordance with recognised practice), it was necessary to combine primary production with rolling and re-rolling mills. This is a pity—though presumably unavoidable—as it would have been more informative and realistic to separate the two types. Incidentally it is interesting to note that there were more than 100 factories in 1946 engaged in the primary production and rolling (or re-rolling) of iron and steel. 78 per cent. of the pig-iron and 87 per cent. of the ingot steel was produced in Bihar, and of a total capital employed of Rs. 31½ crores, 95 per cent. was employed in Bihar and West Bengal. The industry employed 72,000 persons and produced 1,400,000 tons of pig-iron, 1,200,000 tons of steel ingots and 900,000 tons of finished steel (excluding semi-finished steel). The average wages (and other contributions) received amounted in this industry to Rs. 3 - 3 - 0 per day, which was "probably the highest for any industry in India".

Even from this short review it can be seen that these two volumes contain much valuable information which is of interest to many besides those especially concerned with Indian development. Those responsible for the Census are to be congratulated on this initial success. May it prove the forerunner of the more accurate and complete data necessary before the Government will be in a position to fulfil its plans for the economic modernisation and development of the India Union.

VERA ANSTEY.

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